

**MINUTES
OF THE
ENVIRONMENTAL PROTECTION COMMISSION
MEETING**

FEBRUARY 17, 2015

**DNR AIR QUALITY
7900 HICKMAN ROAD
WINDSOR HEIGHTS, IOWA**

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MEETING MINUTES

CALL TO ORDER

The meeting of the Environmental Protection Commission was called to order by Chairperson Mary Boote at 10:00 a.m. on February 17, 2015 at the DNR Air Quality in Windsor Heights, Iowa.

COMMISSIONERS PRESENT

- Mary Boote, Chair
- Nancy Couser, Secretary
- Cindy Greiman
- LaQuanda Hoskins
- Chad Ingels
- Brent Rastetter
- Bob Sinclair
- Gene Ver Steeg – via telephone

COMMISSIONERS ABSENT

- Max Smith, Vice-Chair

ADOPTION OF AGENDA

Motion was made by Bob Sinclair to approve the agenda as amended for agenda item #10 to be after #5. Seconded by LaQuanda Hoskins. Motion carried unanimously.

APPROVED AS AMENDED

APPROVAL OF MINUTES

Motion was made by Chad Ingels to approve the January 21, 2015 EPC meeting minutes. Seconded by Cindy Greiman. Motion carried unanimously.

APPROVED AS PRESENTED

MONTHLY REPORTS

Bill Ehm shared with the Commission:

- DNR had 37 applicants for the vacant Water Quality Bureau Chief position. 5 of the applicants will be interviewed with the goal of the position filled mid March. After the Bureau Chief is hired, the supervisors for Water Supply Operation, Water Supply Engineering, and NPDES will be posted, interviewed, and hired.
- The DNR, Iowa Utilities Board, and Iowa Economic Development Authority created a handout summarizing the U.S. EPA's section 111(d) clean power plant proposal.
- The DNR river programs along with outside stakeholders conducted a Value Stream Mapping event. The event identified the interactions of the programs, overlapping missions, and gaps.

The following monthly reports have been posted on the DNR website under the appropriate meeting month:

<http://www.iowadnr.gov/InsideDNR/BoardsCommissions.aspx>

1. Rulemaking Status Report
2. Variance Report
3. Enforcement Status Report
4. Administrative Penalty Report
5. Attorney General Referrals Report
6. Contested Case Status Report

INFORMATION

PUBLIC COMMENT

Cherie Mortice – ICCI

Cherie Mortice summarized a report from Bill Ehm indicating that over the last few years, 3,000 Notices of Violation have been issued while only 200 cases were referred to DNR Legal Services. The limited referrals is why polluted waterways have increased. A letter of violation means nothing to the operator. The lack of penalties and fines and voluntary compliance with cover crops and buffers do not work and have led to over 600 polluted waterways. At the end of the day, there is a proposed lawsuit by the DMWW. She asked the DNR to step up and do its job.

Mary Clark – ICCI

Mary Clark has a well which was the primary water source for her home. When the well was tested, it had 4 times the nitrate level which resulted in the loss of her child. In the past year, she listed documented manure spills and the gallons of manure released but no fines issued. She provided a handout with the summarized information to Commissioners. Factory farms are polluting by dumping manure. She expressed concern that DNR issues fines for fish killed but not for human health. The EPC and DNR are not protecting the public trust. Des Moines Water Works is running the high cost nitrate removal system so Des Moines residents can have safe water to drink.

Janice Elliot – ICCI

Janice Elliot expressed concern for the law that covers manures spills from factory farms. She is a retired teacher where she taught 11 and 12 year olds how to write a good law where it can be monitored. The manure law doesn't have good measurements or consequences. She doesn't want to see Iowa deteriorate.

Sarah Gardner – ICCI

Sarah Gardner shared with the Commission how she wants Iowa to be a place where her daughter will come back to and raise her kids. With pollution in the water, it is not a very inviting place to bring back our young people.

Shari Hawk – ICCI

Shari Hawk recently read in the paper where a proposed application for a 4,500 head confinement facility in Dickinson County was withdrawn. She questioned what would have happened if the county denied the permit and the matter was before this Commission? She asked where do citizens go when the EPC denies the county's request? She asked for a report of instances when the EPC overruled the county's denial of a permit. With 630 polluted waterways, she believes there should be no more facilities constructed.

Vern Tigges – ICCI

Vern Tigges believes that climate change is even more important than water quality. There are people in denial of climate change but it is a real problem. Only 1 degree change has impacts as demonstrated by severe snow on the east coast and drought in the the Midwest. Clean water will eventually disappear. Large companies are buying up water rights. Oceans will rise leading to salination in the fresh waterways. Fracking is another way to pollute the water. We are at a tipping point with too much carbon dioxide. It is up to us to get on the ball and prevent the 3 degree rise by 2050.

Brenda Brink – ICCI

Brenda Brink encouraged the Commission to submit an objection to the pipeline across Iowa. The proposed pipeline is ten times the carrying capacity of the pipeline that polluted the Yellowstone River. There are hardly any stations to shut down the pipeline if needed. The pipeline will affect farmlands, DNR lands, and rivers. She encouraged the Commission to learn more about the subject and submit an objection.

Written Comments Submitted

Grace Zimmerman – Jones County Farm Bureau Policy Implementation Chair – Against Top Soil Proposed Rules – Request to retain rule requiring 4” of topsoil

END OF PUBLIC COMMENT

DIRECTORS REMARKS

Director Gipp was absent from the meeting. Deputy Director Bruce Trautman did not have any updates.

INFORMATION

ADOPTED AND FILED: CHAPTER 81: "OPERATOR CERTIFICATION: PUBLIC WATER SUPPLY SYSTEMS AND WASTEWATER TREATMENT SYSTEMS"

Diane Moles, Executive Officer 2 of the Drinking Water Engineering Section of the Water Quality Bureau presented the following item.

The Commission was asked to approve amendments to the Iowa Administrative Code for Chapter 81, "Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems."

Reason for Rulemaking:

These amendments enable the department to meet the requirements of Senate File 303 (Home Base Iowa Act) signed by Governor Branstad on May 26, 2014. This new law requires all professional and occupational licensing boards, commissions, and other authorities subject to Iowa Code chapter 272C to adopt rules by January 1, 2015, on military service and veteran certification. The rules must address the process under which each board will provide credit toward licensure qualifications for military service, education, and training and the procedures for expediting reciprocal licensure for veterans who are licensed in other states. The Department is the licensing board for the certification of water and wastewater operators (Iowa Code section 272C.1(6)(x)). Chapter 81 sets out regulations for the certification of public drinking water supply and wastewater treatment operators and includes exam eligibility requirements, exam protocols, continuing education requirements, renewal requirements, reciprocity requirements and all corresponding fees. The Department's water and wastewater operator certification program has included the experience and education obtained by military veterans for several years, but the amendments add necessary clarification to meet the requirements of Senate File 303.

Summary of Proposed Changes

The amendments will clarify the process by which the Department provides credit toward certification qualifications for military service, education and training and the procedures for reciprocal certification for veterans who are certified water or wastewater operators in another state.

Stakeholder Involvement

The amendments were presented to the stakeholders on October 3, 2014, and the Department received unanimous support for the rule making. The stakeholders represent the more than 3,400 certified water and wastewater operators in the state and the stakeholders assisting the transition of military service personnel and veterans into civilian jobs through retraining.

Rulemaking and Public Comment

The Notice of Intended Action for this rulemaking was approved by the Commission at its November 19, 2014, meeting. The Notice was published as ARC 1796C in the December 24, 2014, Iowa Administrative Bulletin. Two articles about the rulemaking and public comment opportunity were included in the department's Water Supply Listserv, which was sent to 992 subscribers on November 12, 2014, and to 997 subscribers on December 31, 2014. The rules were reviewed by the Administrative Rules Review Committee on January 6, 2015. One public hearing was held on January 14, 2015, in Des Moines. There were no attendees at the hearing and no comments were received. The amendments are identical to those published under the Notice.

Commissioner Nancy Couser inquired into any challenges to implement the rule. Diane Moles shared with the Commission Iowa has been a leader when working with veterans holding this type of experience and education.

Motion was made by Nancy Couser to approve the agenda item as presented. Seconded by Brent Rastetter. Motion carried unanimously

APPROVED AS PRESENTED

FINAL RULE - CHAPTER 64 --- WASTEWATER CONSTRUCTION AND OPERATION PERMITS FOR WELL CONSTRUCTION AND WELL SERVICE AND WELL SERVICE DISCHARGES

Wendy Hieb, Environmental Specialist Senior of the NPDES Section of the Water Quality Bureau presented the following item.

The Commission was asked to approve the final rule to amend Chapter 64, "Wastewater Construction and Operation Permits" pursuant to the authority of Iowa Code sections 455B.105(3) and 455B.198.

These proposed rules will renew General Permit 6 which continues to authorize discharge of wastewater associated with well construction activities through the use of best management practices (BMPs) and requires the monitoring of the wastewater effluent to determine compliance with the state's water quality standards.

The Notice of Intended Action (NOIA) was published in the Iowa Administrative Bulletin on December 10, 2014 as **ARC 1757C**, and can be found on pages 938 and 939. A public hearing was held on January 6, 2014. No comments were received. This amendment is identical to the Notice of Intended Action.

Pursuant to Iowa Code section 17A.5(2)"b" this amendment shall become effective March 1, 2015. This amendment sets an effective date sooner than established by Iowa Code section 17A.5(2) because the rule confers a benefit or removes a restriction on the regulated public in that it prevents a lapse in general permit coverage for well construction and service activities that generate wastewater discharges to waters of the United States. Should the General Permit expire prior to renewal, these well services would not be possible during the period of March 1, 2015 to April 22, 2015 as the issuance of an individual NPDES permit can take as long as six months to obtain for this type of activity.

Filing the rules as Emergency after Notice will renew the General Permit prior to the deadline in rule preventing a lapse in permit coverage.

Motion was made by Brent Rastetter to approve the agenda item as emergency after notice. Seconded by Cindy Greiman. Motion carried unanimously

APPROVED AS EMERGENCY AFTER NOTICE

FINAL RULES: CHAPTERS 22, 23, 25, 31, AND 33 – RESCISSION RULEMAKING

Christine Paulson, Environmental Specialist Senior of the Program Development Section of the Air Quality Bureau presented the following item.

The Department requested that the Commission adopt amendments to Chapter 22 "Controlling Pollution," Chapter 23 "Emission Standards for Contaminants," Chapter 25, "Measurement of Emissions," Chapter 31, "Nonattainment Areas," and Chapter 33, "Special Regulations and Construction Permit Requirements for Major Stationary Sources—Prevention of Significant Deterioration (PSD) of Air Quality."

Reason for Rulemaking

The purpose of the rule changes is to rescind unnecessary rules and to update other rules to reduce regulatory requirements. The rules rescinding the Voluntary Operating Permit Program fulfill the recommendations of an Executive Order 80 workgroup. The rules rescinding conditional permits implements the requirements of Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014). The rule changes will also implement a portion of the Department's 5-year rules review plan.

The Department requests to **rescind** the following air quality rules:

- 1) Voluntary Operating Permit (VOP) program;
- 2) Conditional permits;
- 3) Adoption by reference of several federal air toxic and new source performance standards that do not apply to any Iowa sources; and
- 4) References to air quality forms that no longer exist or are explained elsewhere in rule.

The Department also requests two rule **updates** to reduce regulatory requirements, as follows:

- 1) Sunset the requirements for testing and monitoring of mercury emissions that are being addressed by federal regulations; and
- 2) Remove several compounds from the definition of volatile organic compounds (VOC) to match recent federal amendments.

Summary of Rule ChangesRescission of VOP program

The Department originally developed the VOP program in the mid-1990's to assist facilities that wanted to take voluntary limitations on emissions and operations to avoid having to obtain a federal Title V operating permit. The Voluntary Operating Permit (VOP) Executive Order (EO) 80 stakeholder group recommended that the Department work individually with each of the VOP facilities to assist the affected facilities in utilizing other existing permitting options that meet the needs of the facility and the Department.

All 18 facilities that had previously used the VOP program to establish limits to stay out of the Title V program have been transitioned over to other permitting options. Since the VOP program is no longer in use, the VOP rules can be rescinded.

Rescission of conditional permits program

Conditional permits were added to the Iowa Code in the 1970's to facilitate electric utility rate setting. The Iowa Utilities Board changed the rate setting requirements so that conditional permits were not needed. Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014) removed the statutory authority for conditional permits. The rule changes would rescind conditional permit references that are no longer supported by statutory authority.

Rescission of air toxics standards and new source performance standards

The Department requests permissions rescind adoption by reference of several federal air toxics standards (also known as National Emission Standards for Hazardous Air Pollutants or "NESHAP") and federal new source

performance standards (NSPS). The rescissions affect industries such as mineral processing that do not currently operate in Iowa, and are unlikely to operate in Iowa in the future. *(Please see the attached table of NESHP and NSPS recommended for rescission.)*

Sunsetting the mercury emissions testing and monitoring rules

The Commission previously adopted the mercury emissions testing and monitoring rule in 2009 as temporary requirements until EPA finalized its mercury air toxics standards (MATS) for electric utility steam generating units (EGUs). EPA has now finalized MATS, which includes mercury emissions standards and monitoring requirements. The state rule is duplicative of the MATS requirements and is no longer needed.

The Department had proposed a sunset date of April 16, 2015, for the mercury rule, which is the MATS compliance date for existing EGUs. However, the Department is recommending that the sunset date in the final rule be revised to April 22, 2015. The date change will ensure that no conflict exists between the sunset date in the rule and the 35-day effective date for an Adopted and Filed rule making required under Iowa Code section 17A.5. If a facility receives an extension to comply with MATS, the Department recommends that the facility continue to comply with the mercury emissions testing and monitoring rules until the date the facility is required to comply with MATS, or, alternatively, is no longer subject to MATS compliance requirements.

Removing compounds from the list of volatile organic compounds (VOC)

EPA revised the definition of VOC to exclude several compounds because the compounds make a negligible contribution to tropospheric ozone formation. The Department is recommending that the Commission adopt EPA's revisions so that facilities no longer need to count the excluded compounds towards potential VOC emissions in air permit applications and emissions inventory calculations and reporting.

Rescission of rules for air quality forms in Chapter 20

567 IAC 20.3 includes names and descriptions of the Department's air quality forms. The Department is recommending elimination of this rule because some of the forms are no longer in use, and other forms are referenced elsewhere in the air quality rules.

Public Comments

The Department received no public comments on the Notice of Intended action at the public hearing held on January 26, 2015, and received no written comments prior to the January 26 public comment deadline. Except for the change in the sunset date from April 16, 2015, to April 22, 2015, in the mercury monitoring rule described above, the Department did not make any changes to the final rules from the rule changes proposed in the Notice of Intended Action.

With Commission approval, the final rules, the Adopted and Filed rules will be published on March 18, 2015, and will become effective on April 22, 2015.

Motion was made by Bob Sinclair to approve the agenda item as presented. Seconded by Brent Rastetter. Motion carried unanimously

APPROVED AS PRESENTED

CONTRACT AMENDMENT – UNIVERSITY OF IOWA, FLOODPLAIN MAPPING

Chris Ensminger, Supervisor of the GIS Section of the Land Quality Bureau presented the following item.

The Department requested Commission approval of amendment number 3 to contract number ESD7385SRALST100332. This amendment would change the not-to-exceed total amount of the contract from \$10,000,000 to \$12,500,000

Funding Source:

The source of funding for this Contract Amendment is a Federal appropriation from the CDBG program as outlined in Public Law 110-329 and administered by the Iowa Economic Development Authority.

Background:

The Department received a Community Development Block Grant for \$15,000,000 to develop floodplain maps across the state. Originally, \$10,000,000 of these funds were obligated to the University of Iowa's Iowa Flood Center (IFC). Due to the excellent quality and value of the floodplain mapping services received to date, the Department wishes to extend the amount of work performed by the IFC.

Purpose:

The purpose of this amendment is to modify the not-to-exceed total contract amount from \$10,000,000 to \$12,500,000.

Chris Ensminger answered questions of the Commission regarding work by staff of the University of Iowa, draft map review by certain communities, and the areas of the state where mapping is complete and areas not yet finalized. Chris pointed out that communities reviewing the draft map have not challenged the accuracy of any data.

Motion was made by Chad Ingels to approve the agenda item as presented. Seconded by LaQuanda Hoskins. Motion carried unanimously

APPROVED AS PRESENTED

SOLID WASTE ALTERNATIVES PROGRAM – CONTRACT RECOMMENDATION

Tom Anderson, Executive Officer 2 of the Financial and Business Assistance Section of the Land Quality Bureau presented the following item.

Presented at the December 2014, Commission meeting were SWAP committee recommendations following the review of October's round of applications. At that meeting, four (4) projects selected for funding were presented to the Commission. One (1) additional project being considered for funding at that time required additional review. This additional review has now been completed.

Before finalizing the funding recommendation, the question regarding whether or not the applicant's current permit with EPA allowed for the activities being proposed or if an amendment to the current permit or a separate EPA permit would be required. After discussions with EPA, our Solid Waste Section and the applicant, EPA determined that the existing permit allowed for the activities being proposed.

The project addresses a significant issue of sustainable and environmentally responsible recycling of lead-containing cathode ray tubes (CRTs). CRTs are the glass tubes used in electronics and older televisions. While electronic waste recycling has increased over the past several years, CRTs have and continue to be difficult to manage and to fully recycle because of their hazardous nature. A portion of the glass CRT is lined with lead, a hazardous heavy metal. The lack of adequate outlets has resulted in stockpiling of CRTs and in some cases, illegal disposal and shipping them overseas for disposal.

The review committee consisted of five persons representing the Land Quality Bureau (2), Iowa Society of Solid Waste Operations (1), Iowa Recycling Association (1), and the Iowa Waste Exchange (1).

The Department requested Commission approval to enter into a contract with A-TEC Electronics Recycling to implement complete CRT recycling.

Tom Anderson answered questions of the Commission relating to other facilities conducting this type of work, approximate timing of this facility becoming operational, and estimated volume of CRTs entering the recycling stream.

Motion was made by LaQuanda Hoskins to approve the agenda item as presented. Seconded by Bob Sinclair. Motion carried unanimously

APPROVED AS PRESENTED

WINNESHIEK COUNTY RECYCLING DEPARTMENT HOUSEHOLD HAZARDOUS WASTE (HHW) SATELLITE YEAR ROUND SERVICE

Tom Anderson, Executive Officer 2 of the Financial and Business Assistance Section of the Land Quality Bureau presented the following item.

The Department received one (1) application requesting \$116,732 in financial assistance through the Regional Collection Center Establishment Grant Program. After reviewing the application, the applicant project is recommended for funding in the amount of \$54,663.

Funding Source:

The selected Regional Collection Center Establishment Grant contract will be funded pursuant to the Groundwater Protection Fund (455E.11).

Background:

Iowa code requires the Department to establish facilities for the proper management and disposal of Household Hazardous Materials for both urban and rural populations. Regional Collection Centers are permanent facilities that provide household hazardous waste management education and on-going access to proper disposal of household hazardous materials generated by conditionally exempt small quantity generator (CESQG) businesses, urban and rural households, and farming operations. Household hazardous materials (HHMs) possess any or all of the following characteristics: toxic, corrosive, flammable or reactive.

A total of 7,057,212 pounds of waste were accepted, processed, recycled and disposed of through the RCC Program in FY 2014. These materials represent the most toxic materials in the solid waste stream and are being prevented from mixing with incompatible materials and entering Iowa’s landfills.

Purpose:

Winneshiek County will be provided year round household hazardous materials education and convenient opportunities for on-going safe and proper disposal of hazardous materials generated by households, farming operations and eligible small businesses. The county has 7,997 households and 176 eligible small businesses that will benefit from this project. Projected HHMs that could be annually collected from Winneshiek County are 494,280 lbs.

The Department requested Commission approval to enter into a contract with Winneshiek County to establish a satellite Regional Collection Center serving Winneshiek County and partnering with Floyd Mitchell Chickasaw Regional Collection Center for final disposition of all household hazardous materials.

Motion was made by Brent Rastetter to approve the agenda item as presented. Seconded by Chad Ingels. Motion carried unanimously

APPROVED AS PRESENTED

GENERAL DISCUSSION

- Chair Boote thanked the Commission for the Annual Report and opened the discussion for methods for distributing the report to key stakeholders.
- Chair Boote shared with the Commission the agenda order adjustment where the Director now provides comments after the Public Participation.
- Ed Tormey highlighted the process for addressing violations, including possible enforcement.

NOTICE OF INTENDED ACTION – CHAPTERS 50 “SCOPE OF DIVISION,” 52 “CRITERIA AND CONDITIONS FOR AUTHORIZING WITHDRAWAL, DIVERSION AND STORAGE OF WATER,” AND 53 “PROTECTED WATER SOURCES”

Chad Fields, Geologist 3 of the Drinking Water Engineering Section of the Water Quality Bureau presented the following item.

The Commission was asked to approve the Notice of Intended Action to initiate rulemaking to amend Chapters 50 “Scope of Division,” 52 “Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water,” and 53 “Protected Water Sources.” The proposed amendments will revise the rules governing the use of the Cambrian-Ordovician Aquifer (commonly called the Jordan Aquifer) in Iowa. The proposed changes are a result of the recommendations made to the Commission by the EO80 Stakeholder Group that was tasked with evaluating the current rules to better manage the usage of the Jordan Aquifer. At its November 19, 2014, meeting, the Commission directed the EO80 Stakeholder Group and the Department to develop rules for those recommendations that required rule changes.

Reason for Rulemaking:

The Jordan Aquifer extends underneath much of Iowa and is a significant well water source in the state. Protection from overuse of the resource (also known as dewatering the aquifer) is needed in some parts of the state. The EO80 Stakeholder Group developed a tiered classification system for existing and future Jordan wells that are required to be permitted under the state’s water allocation rules, so that the resource will have a sustainable use into the future. A water allocation permit must be obtained by anyone withdrawing at least 25,000 gallons in a single day during the year. A permit holder withdrawing more water than the aquifer can sustain at that well location will be required to develop a water use reduction plan and implement measures so that the aquifer can recover to a sustainable level. Other proposed rule amendments require activities that result in closer oversight of the aquifer.

Stakeholder Involvement

The EO80 Stakeholder Group met five times in 2014, and its recommendations were presented to the Commission on June 17, 2014, and on November 19, 2014. A sixth meeting was held on December 30, 2014, with Department staff to finalize the proposed amendments. Members of this committee and the representation the members provided are as follows:

<i>Name</i>	<i>Organization</i>	<i>Representing</i>
John Crotty	Iowa Environmental Council	Environmental advocacy group
Shawn Kerrick	Koch Nitrogen	Industrial user from business located in affected area
Gale McIntosh	Northway Pump	Water well contractor
Jill Soenen	Iowa Association of Municipal Utilities	Municipal utility association
Todd Steigerwaldt	City of Marion (Water Works)	Municipal user in affected area
Becky Svatos	Stanley Consultants, Iowa ABI	Professional consulting engineering firm, Business association
Nancy Couser	Environmental Protection Commission	State agency

Summary of Proposed Changes

Chapter 50: amend the definition of aquifer, and add the definitions of confined aquifer and water use reduction plan.

In Chapter 52, rescind the current subrule pertaining to the withdrawal of water from the Cambrian-Ordovician (Jordan) Aquifer and replace it with a new subrule that:

- Adds tiering criteria to classify each Jordan well requiring a water allocation permit into one of three tiers, depending upon the pumping water levels as compared to the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer at that location.
 - Tier 1 wells shall follow standard water use reporting procedures with no additional requirements.
 - Tier 2 and Tier 3 wells have the additional requirements of site-specific water use reduction plans. The new subrule also includes the actions the Department may take if water levels continue to decline beyond the Tier 3 level.
- Changes the permit cycle for Jordan water allocation permits from ten years to five years.
- For new Jordan wells, requires that a water allocation permit be obtained before a water well construction permit is issued, to ensure adequate water allocation before the expense of the well construction is incurred.
- Retains the current 200 gallons per minute restriction on irrigation, recreational, and aesthetic uses.
- Retains the 2,000 gallons per minute restriction on industrial and power generation uses.
- Replaces the measurement level of piezometric head with the pumping level.
- Prohibits once-through cooling or geothermal use, with an allowance for geothermal use only if all of the withdrawn water is injected back into the aquifer.

In Chapter 53, add two areas to the protected source rules, in Johnson and Linn Counties, and in Webster County, and require that only the Department issue the well construction permits inside of those defined areas.

Public Comment Period and Public Hearing

The Department proposed three public hearings:

- April 8, 2015 at 1 p.m., Coralville Public Library
- April 9, 2015 at 11 a.m., Wallace State Office Building in Des Moines
- April 10, 2015 at 11 a.m., Fort Dodge Public Library

The public comment period would end April 14, 2015.

Chad Fields provided a PowerPoint presentation summarizing the geology of the Jordan Aquifer.

Motion was made by Brent Rastetter to approve the agenda item as presented. Seconded by Cindy Greiman. Motion carried unanimously

APPROVED AS PRESENTED

GROUNDWATER STATUS REPORT

Bob Libra, State Geologist of the Environmental Services Division presented the following item.

The Iowa Department of Natural Resources (DNR) provided the Groundwater Status Report in fulfillment of Section 455B.263(1) of the Iowa Code, which states:

The commission shall deliver to the general assembly by January 15, 1987, a plan embodying a general groundwater protection strategy for this state which considers the effects of potential sources of groundwater contaminations on groundwater quality. The plan shall evaluate the ability of existing laws and programs to protect groundwater quality and recommend any necessary additional or alternative laws and programs. The department shall develop the plan with the assistance of and in consultation with representatives of agriculture, industry, and public and other interests. **The commission shall report to the general assembly on the status and implementation of the plan on a biennial basis.** This section does not preclude the implementation of existing or new laws or programs which may protect groundwater quality.

This report is intended to serve as the current report on the status of groundwater in Iowa. It focuses on the water supply, or "water quantity" work of the DNR and its partners, and briefly summarizes the status of Iowa's groundwater supplies. It also summarizes a review of DNR water allocation policy.

The Department asked for approval of the Commission to submit the report.

Bob Libra provided a PowerPoint presentation outlining the goals, accomplishments, and ongoing needs.

Motion was made by Bob Sinclair to approve the agenda item as presented. Seconded by Chad Ingels. Motion carried unanimously

APPROVED AS PRESENTED

ISU – UPDATE ON ODOR MITIGATION

Dr. Jay Harmon, Dr. Jacek Koziel, and Dr. Steven Hoff, Professors of Iowa State University presented PowerPoint presentations to the Commission regarding research conducted, outreach tools, and potential future research projects.

INFORMATION

Chairperson Boote adjourned the Environmental Protection Commission meeting at 2:00 p.m., Tuesday, February 17, 2015.



Chuck Gipp, Director



Nancy Couser, Secretary

RECEIVED

FEB 06 2014

141 Country Club Co. **Director's Office**
Anamosa, IA 52205
gracichz@mchsi.com
Phone: 319-462-4650
January 28, 2015

Environmental Protection Commission
Attn: Director Chuck Gibb & members
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Memo to Members of the Environmental Commission:

We are concerned about the effects of the advisory panel's recommendations that the EPC do away with the requirement that a uniform post construction 4-inch layer be restored at work sites.

To replace it with new language favored by home builders takes away any measurable standard.

Did you even consider any ramifications regarding water quality? Common sense should tell you that if the top soil is not used, it will result in considerable more run off. Homeowners will feel it necessary to turn to more costly measures to make their lawns a matter of pride, even resulting in the abhorrent use of chemicals. Builders using the lame excuse that using the 4-inch rule adds to the cost of construction, is only a cover story and doesn't hold water!

Please take into consideration that this change doesn't ring true. It's coming at a time that farmers are facing more criticism failing to curtail farm runoff. And you're setting them up for even more disparagement.

Please refrain from blindly following friends of the building industry. Now is the time to research the matter considering all aspects of the inexpedient proposal.

With regards,

Grace H. Zimmerman

Grace H. Zimmerman Jones County Farm Bureau Policy Implementation Chair & Board Members

Guy M. Peterson
Al Thomson
Ray B...
D... Hall
Chad Adams

Harry J...
Daniel G. Rubel
Mike S...
Robert N...

Heard E...
Joe Spahr

SUMMARY OF IOWA COLLABORATION ON EPA'S CLEAN POWER PLAN

EPA's Proposed Rules to Reduce Carbon Dioxide Emissions from Existing Power Plants

In June 2014, the federal Environmental Protection Agency (EPA) issued proposed rules to regulate and reduce carbon dioxide (CO₂) emissions from existing power plants, sometimes called the EPA's Clean Power Plan. The rules were proposed under the authority of the Clean Air Act section 111(d) and are often referred to as the 111(d) rules.

EPA's proposed rules do not set a specific limit on CO₂ emissions from individual power plants. Instead, a goal is set for the entire state's emissions from its electric generation. Under the proposal, each state has an interim and a final CO₂ emissions rate goal. The goals are expressed as the pounds of CO₂ emitted per megawatt-hour (MWh) of net generation.

The EPA's proposed rules define four types of actions states may take to reduce CO₂ emissions: 1) making heat rate improvements at existing coal plants; 2) increasing dispatch of natural gas plants; 3) increasing the use of renewable generation; and 4) increasing the use of energy efficiency. The proposed rules provide flexibility for states to choose how they will comply with the new requirements. States are not required to use all four of the actions.

The proposed rules and their accompanying technical documents are complex and are not clear on some issues of critical importance to Iowa. EPA requested comment on many topics and has included different options for some rule provisions that would likely result in vastly different emission requirements. Since we do not know what EPA will include in its final rules, we do not yet know what the costs or other regulatory impacts of the rules will be on Iowa. EPA plans to issue its final rules in the summer of 2015. Under the current proposal, states will then have until June 30, 2016, to submit their state plans to EPA for approval with the possibility of a one-year extension. If states choose to participate in a regional plan, they will be given an additional year to complete their plans.

State Agency Collaboration

Three Iowa state agencies are working together and with affected stakeholders to understand the proposed rules and how they could affect Iowa: the Iowa Department of Natural Resources (IDNR), the Iowa Utilities Board (IUB), and the Iowa Economic Development Authority (IEDA). The three agencies are working to improve the proposed rules and filed joint written comments to EPA on the proposed rules. The IDNR implements state and federal laws that protect air, land, and water and has authority delegated from EPA and state statutes to implement the 111(d) regulations in Iowa. Therefore, IDNR is the lead Iowa agency with respect to the 111(d) rules. The IUB regulates electric utilities and their energy efficiency programs, decides whether rate-regulated utilities may recover their costs of renewable generation and environmental compliance in their electric rates, encourages investment in renewable generation in Iowa, and has an interest in ensuring that Iowans receive reliable and safe electric service. The IEDA assists economic development projects in Iowa and has an interest in ensuring that the use, cost, and regulation of energy in Iowa do not limit economic growth in the state.

Although these agencies have differing responsibilities, they are working together so that the final 111(d) rules are implemented in a way that reduces CO₂ emissions while minimizing adverse impacts on the reliability of the electric system and electric rates.

Iowa's 111(d) Stakeholder Process

IDNR, IUB, IEDA, investor-owned utilities, municipal utilities, rural electric cooperatives, environmental groups, and other agencies and organizations have been participating in an open, inclusive stakeholder process. Participation is open to all interested parties. The group has been discussing ways to meet the federal guidelines in the most cost-efficient and practical manner. Iowa stakeholders met four times since the fall of 2013, with approximately 35 different organizations participating. In addition, the IDNR and IUB have participated in more than 25 meetings with individual stakeholders since the rules were proposed. Following these meetings, the IDNR, IUB, and IEDA submitted joint comments to EPA on November 14, 2014. Once the EPA rules become final, the Iowa stakeholder process will be used to discuss how to best meet the new requirements and to develop Iowa's state plan.

Important Issues for Iowa

One issue of critical importance to Iowa is whether states will be allowed to take credit for early actions. Iowa has one of the highest rates of wind energy generation in the U.S., and its utilities and customers have invested billions of dollars to achieve this. Iowa utilities have invested in other forms of renewable generation as well. Iowa's utilities have also been required to implement energy efficiency programs for many years and have achieved significant savings from those programs. While Iowa hopes to be able to take credit for these existing activities, the proposed rules are not clear on this issue. In our comments, we stated that EPA should reward early action and give states credit for all actions that have been taken or will be taken to reduce CO₂ emissions.

Another issue of great importance to Iowa is whether states will be given the flexibility to count renewable generation that is produced in one state and consumed in another. Each electric utility manages its generation fleet as a whole, and not necessarily within the boundaries of a single state. Some Iowa utilities own renewable generation in other states and others sell renewable generation across state borders. Some out-of-state utilities own renewable generation located in Iowa. It is unclear which state will be able to count the renewable generation in these circumstances. Iowa encouraged EPA to allow the owners of the renewable generation the flexibility to decide which state can count the generation, as long as it is not double counted.

A third issue of importance to Iowa is the compliance timeline. States and utilities need sufficient time to develop their state plans and adequate time to implement the changes that will be required. As proposed, states must meet an interim emission reduction goal by 2020 and a final goal by 2030. Iowa's proposed interim goal is nearly the same as its final goal, which means Iowa and its utilities will need to comply by 2020. Not allowing sufficient time for careful planning and implementation could impose unnecessary costs and adverse effects on reliability. Therefore, in the comments to EPA, the three agencies suggested that EPA eliminate the interim goals, or at least start them no earlier than 2025 with significantly less stringency than the final goals. If EPA chooses to delay or delete the interim goal deadline, it would allow the state and Iowa utilities time for efficient, thoughtful planning and implementation of required changes. This could make a significant difference on the costs and reliability impacts of the rules for Iowa.

For More Information

For more information on the Iowa stakeholder process, contact Marnie Stein at marnie.stein@dnr.iowa.gov or 515-725-9555, or visit <http://www.iowadnr.gov/InsideDNR/RegulatoryAir/StakeholderInvolvement.aspx>.

Iowa's joint agency comment letter to EPA is also posted on this website, which gives additional detail on the 111(d) issues that are important to Iowa.

02-17-2015

I am Mary Clark a rural Polk County resident. I live with a well as my primary source of water. 45 years ago, I lived with a well that had Nitrates 4 times the safe level fit for human consumption, which caused a tragic loss in my family. High nitrate levels in drinking water can cause many tragic health problems and even death.

The following are documented manure spills, source DNR.

Jasper County:

Clinton Voss- spill 8-27-14, this is their 2nd documented manure spill, didn't notify DNR in 6 hours. It reached a body of water fish kill occurred. Fine: \$348.27

Last inspection was 2-3-2006. Has had multiple manure management violations. 4,000 hogs.

O'Brien County:

Summit Dairy, owner John Westra: spill: 8-16-14, didn't notify DNR in 6 hours. Spill reached Mill Creek- killed 865,940 fish and polluted 28 miles of stream. Fine: \$160,497.36 (mainly for fish kill). Last inspection 2008, but DNR was onsite in April 2014.) Amount of spill unknown. 1,500 dairy cows in confinement.

Mitchell County

Pronet Farms, owner Ronald Litterer- Spill: 10-31-14. DNR was notified by neighbor w/in 6 hours. 5,000 gallons, reached Little Cedar River which is already on polluted waterway list. 3,736 gestation hogs. Last inspection date unknown.

Keokuk County

LDR Ranch, owner Dennis Striegel: spill 11-12-14. DNR was notified w/in 6 hours. 1800 gallons of toxic liquid manure spilled. It reached an unnamed tributary of Clear Creek, which is a tributary of the Skunk River. Fine unknown. Animals confined: 1,900, gestation. Last inspection on 9-2-2004

Audubon County:

By Audubon-Manning Veterinary Clinic, spill: 10-13-13 their 4th documented manure spill, they did notify DNR in 6 hours.

Last onsite inspection was April 2007, desk top inspection 9-25-14.

5,000 gallons of manure spilled - it reached a body of water. 4,425 hogs.

Spill history: 3-26-2001, 7-30-03, 10-26-2013, 10-31-2013.

Guthrie County:

Van Meter Feed Yard, spill:10-4-14 this is their 5th documented manure spill, didn't notify DNR in 6 hours. Last inspection was on 6-30-11. 14,000 Cattle feed lot.

200,000 gallons of manure spilled, press release says it reached a body of water.

Spill history: 4-9-01, 11-18-03, 11-17-04, 03-24-10, 10-4-14. No fine issue as yet.

Wright County:

Iowa Select, Dows spill: 1-20-14 their 3rd documented manure spill, didn't notify DNR in 6 hours. 1,000 gallons of manure spilled, reached drainage ditch & the Iowa River. No fines.

16,000 hogs on site.

Last inspection April 2013, deficiency was found.

These polluting farms need to have Clean Water Act permits to operate, or shut them down. Obviously the voluntary practices of conservation measures and incentives to minimize runoff from farmland aren't working because we have over 630 documented polluted waterways and over 700 documented manure spills in our state. These farms should not be allowed destroy our precious natural resources.

The DNR and the EPC are not protecting the public trust; our water, our air and our soil.

Through the lack of action to enforce regulations and fine the factory farms that pollute our waterways, the Des Moines area is now dealing with the high costs of running their nitrate removal treatment operations in order to make polluted water safe for drinking.

Small municipalities most certainly will not be able to afford such costly water treatment operations. How will they ensure clean water for their small town residents? What about those families who have wells in jeopardy, because of manure spills/manure spreading? They will be faced with installing expensive Reverse Osmoses water treatment systems in their homes just to have safe, nitrate free drinking water.

Are the profits of a few corporate farms more important than the health and welfare of Iowa's residents?

Please put people's health above agriculture's profits.

Please enact the following:

1. **Permits:** The DNR has failed to issue a single Clean Water Act permit since the workplan was passed in September of 2011. Every farm polluter needs to have a Clean Water Act permit.
2. **Fines and Penalties:** The DNR continues to give polluters a slap on the wrist in a Notice of Violation, instead of an Administrative Order. Why aren't these habitual polluters fined heavily and put out of business. If they pollute three times, 3 strikes, their out, close them down.
3. **Inspections:** The DNR needs to have quality on site factory farm inspections, not desktop surveys which are highly inadequate and will not catch leakage/spillage problems on factory farms. There needs to be more funding for more farm inspectors and farm inspections.
4. **Database:** We need to have an open publically accessible data base documenting manure spills and illegal manure spreading. Including details of all spills that lead to waterways. There should be no secrets when it comes to who's polluting OUR water! The Iowa public has a right to know what is being put in our drinking and recreating waters.

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

**Selected ISU Livestock Odor and Air Quality
Research and Extension Activities**

January 2015

Air Management Practices Assessment Tool. AMPAT is an online resource that provides an objective overview of mitigation practices best suited to address odor, emissions and dust at Iowa livestock operations. AMPAT helps producers compare and narrow their options of the best mitigation techniques for animal housing, manure storage and handling and land application of manure. The tool provides conservative estimates of the effectiveness of mitigation plus the relative cost. It was originally developed in 2004.

- Phase 1: Funded by the National Pork Board, this project is updating the current site to include more recent mitigation techniques and to add impacts on volatile organic compounds and greenhouse gases. A new interface for easier side-by-side comparisons are included. Short video presentations and fact sheets are available for each of 21 technologies. *(Jay Harmon, Steve Hoff, Dan Andersen, Agricultural & Biosystems Engineering; Angie Rieck-Hinz, Agronomy)*
- Phase 2: Funded by the Indiana Soybean Alliance, this project will provide a comprehensive literature database for all major livestock and poultry species. This data will be available for researchers and others wanting to examine mitigation techniques at a deeper level. Results will be used to update and improve the AMPAT tool as new information emerges. *(Jacek Koziel, Jay Harmon, Steve Hoff, Agricultural & Biosystems Engineering; Angie Rieck-Hinz, Agronomy)*

Evaluation of polymer reduce emissions from swine finishing facilities. ISU scientist will conduct research to evaluate the efficacy of an acidic polymer from a private firm to potentially reduce ammonia, greenhouse gas and odor emissions from deep-pit swine manure storage areas. The project, which begins in summer 2014, will initially be a lab study under controlled conditions using manures of different sources and distinct dosing rates. Options for field-testing will be reviewed based on results of the study. *(Daniel Andersen, Jacek Koziel, Agricultural & Biosystems Engineering)*

Estimating methane emissions. ISU researchers developed a lab procedure to estimate manure's methane production rate and used field-measured variables to estimate methane emission from swine manure storage areas. They continue to work on methods to characterize manure's physical, chemical and biological properties and relate them to the methane production rate. The research is important to better understand and estimate the production and emission of this potent greenhouse gas from manure storage. *(Daniel Andersen, Agricultural & Biosystems Engineering)*

Anaerobic digestion's impact on odor, ammonia. ISU scientists are studying anaerobic digestion and energy generation from manure and how these processes may influence odor and ammonia emissions. They will evaluate how anaerobic digestion influences odor and ammonia during storage after digestion and undigested manure.

They will evaluate physical properties including solids content, particle size distribution and viscosity as well as chemical properties including pH, ammonia nitrogen content, chemical oxygen demand and volatiles solids. They will seek to relate these properties to the potential for ammonia and odor emission. The research begins the summer of 2014 and will run two years, with a Fulbright Scholar recruited for the project. *(Daniel Andersen, Jacek Koziel, Agricultural & Biosystems Engineering)*

Diets that reduce ammonia emissions from hen houses. Results from ISU research indicate that manipulating the diets of laying hens is a viable means of reducing ammonia emissions. The two-year field study involving commercial laying-hen houses in Iowa examined the effects of adding to diets a commercial feed additive called EcoCal or dried distillers grains with solubles (DDGS). The research results have been published in peer-reviewed journals. The feed additive diet reduced ammonia emissions by an average of 39 percent; the DDGS diet reduced emissions by 14 percent. In both cases, the diets had no negative effects on hen production performance as compared to the control diet. The project was funded by the USDA Natural Resource Conservation Service's Conservation innovation Grant Program and the United Egg Producers. *(Hongwei Xin and Hong Li, Agricultural & Biosystems Engineering)*

Environmental assessment of laying-hen housing systems. ISU scientists recently completed a study to quantify indoor air quality and gas and particulate emissions as part of a national project that is systematically assessing three different laying-hen housing systems. Data from the study, which are being published in peer-reviewed journals, provide baseline comparisons and emission values for conventional and alternative hen housing systems. The project was funded by the Coalition for Sustainable Egg Supply. *(Hongwei Xin, Tim Shepherd and Yang Zhao, Agricultural & Biosystems Engineering)*

Quantifying emissions from swine facilities. A first-of-its-kind study by Iowa State has filled information gaps on air emissions from swine facilities. Research and information on ammonia and greenhouse gas emissions from swine operations — particularly from breeding, gestation and farrowing facilities in the Midwest — has been meager. A research team quantified ammonia and greenhouse gas emissions from a 4,300-sow breeding, gestation and farrowing facility located in central Iowa. The research contributes to establishing accurate baseline emission rates for similar facilities in the Midwest and provide farmers with reliable data in making decisions on emission controls. The project was funded by the Iowa Pork Producers Association and administered by the National Pork Board. *(Hongwei Xin, Robert Burns and John Stinn, Agricultural & Biosystems Engineering)*

Improving environment and productivity of aviary hen housing. The goal of this newly funded research project is to improve the indoor environment and productivity of an alternative aviary (cage-free) hen housing system. The research will devise an innovative mitigation system that suppresses the generation of particulate matter, airborne bacteria and ammonia. An added benefit is that the system will relieve heat stress of hens caused by hot weather. In lab-scale experiments, the researchers will quantify the efficacy of spraying acidic electrolyzed water onto the litter (a mixture of hen manure and bedding materials) of aviary housing to reduce particulate matter, airborne bacteria and ammonia generation. They will design, install and field-test a spray system in a commercial aviary hen house, and quantify the impact of the spray system on reducing particles and emissions. They will evaluate the effects of the spray system on

hen behavior and welfare, and evaluate the efficacy of the system on heat stress relief in summertime. The project is funded by the USDA National Institute of Food and Agriculture. (*Hongwei Xin, Yang Zhao and Michelle Soupir, Agricultural & Biosystems Engineering; Tong Wang, Food Science and Human Nutrition; and Suzanne Millman, Veterinary Diagnostic & Production Animal Medicine.*)

Community Assessment Model (CAM) for Odor Dispersion. Since 2005, CAM has been a valuable preplanning tool offering guidance for hundreds of Iowa pork producers on where to build new facilities. The field-validated computer model helps assess potential site risk and determine how far odors from proposed sites will travel under a variety of atmospheric conditions. The model makes predictions based on historic weather patterns, type and size of facility and number of animals. CAM notes location of neighbors, other odor sources, number and age of animals, seasonal ventilation rates and more. The model estimates what percentage of time a neighbor may be exposed to odors. It factors in how odor-reduction technologies would benefit sites. ISU's Iowa Pork Industry Center and the Coalition to Support Farmers have partnered to advise farmers on selecting sites, including using CAM as a resource. Three papers on CAM's acceptance as a useful tool and evaluating its effectiveness have been published. (*Steve Hoff and Jay Harmon, Agricultural & Biosystems Engineering*)

Biofilters to mitigate odors, emissions. Biofilters can be an effective means to reduce odor and other gas emissions from ventilated animal and manure storage facilities. Iowa State hosted a biofilter conference on Aug. 20, 2014, to introduce producers, managers and owners to biofilters and how they may be used to mitigate emissions from animal feeding operations. The conference outlined factors such as costs, effectiveness, management and other details, and provide sources of science-based information on biofilters. (*Steve Hoff and Jay Harmon, Agricultural & Biosystems Engineering*)

Soybean-hull manure additive. Iowa State researchers conducted farm-scale testing of soybean peroxidase, a compound derived from soybean hulls for swine manure treatment and mitigation of key odor-causing gases, ammonia, hydrogen sulfide and greenhouse gas emissions. The researchers applied the ground soybean hulls-based product treatment through floor slats of swine housing. Over a month and a half, the treatment reduced ammonia by 22 percent, hydrogen sulfide by 80 percent and key odor-causing compounds from 14 percent to 48 percent. The estimated cost of treatment was \$1.45 per marketed pig and \$2.62 per marketed pig when the cost of labor was added, placing it at the lower range of comparable products. The project, funded by the National Pork Board, was completed in June 2014. (*Jacek Koziel, Agricultural & Biosystems Engineering*)

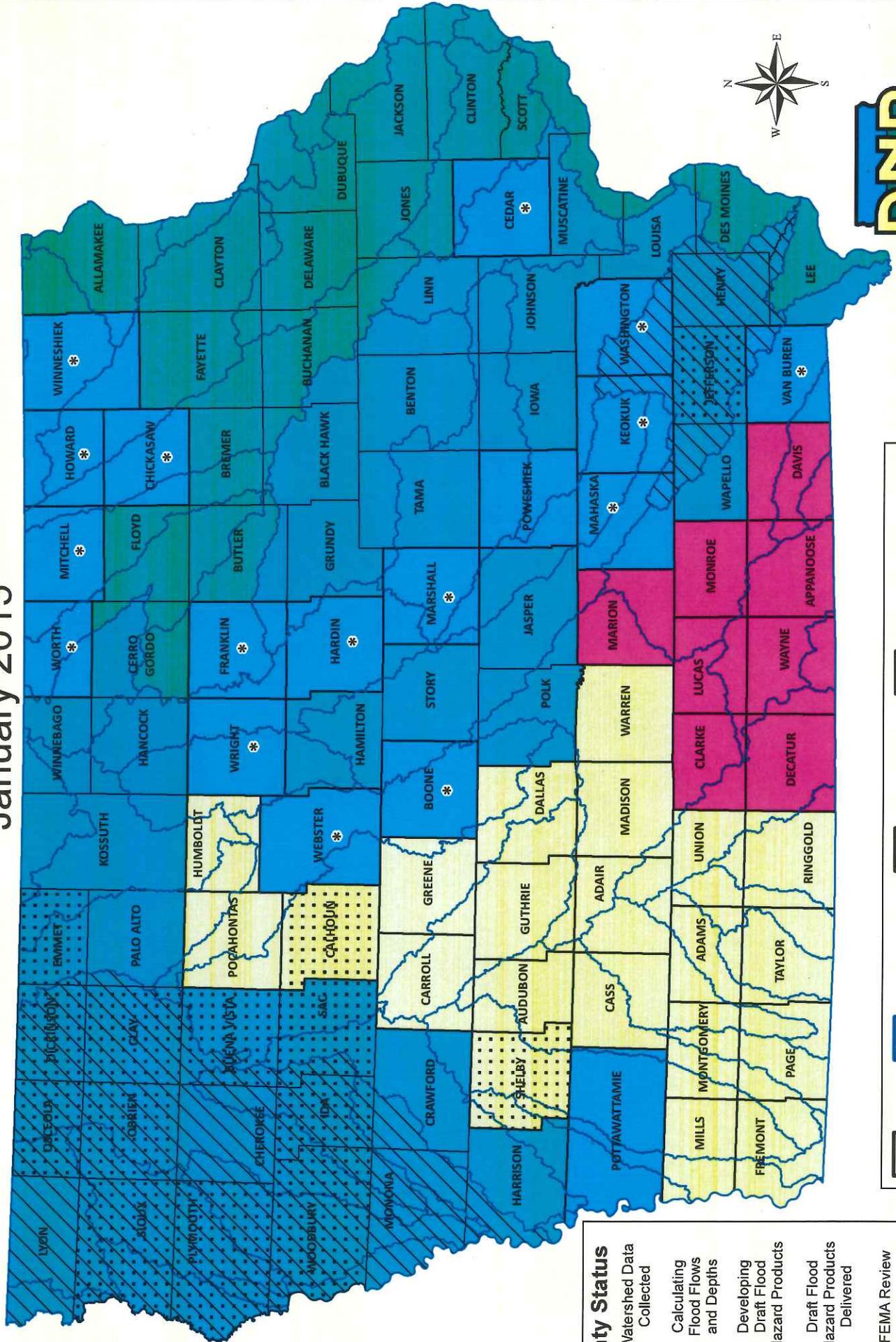
Extension manure applicator training. ISU organizes and delivers the annual Iowa Manure Applicator Certification program, a state-mandated training for confinement site and commercial manure applicators. The Iowa Department of Natural Resources contracts the program to ISU Extension. About 4,800 people were certified in the past year, with ISU faculty and extension specialists conducting workshops on regulatory requirements and odor control management practices. During the 2014 commercial applicators training, a module was presented on land application methods to conserve nutrients and minimize odor. The module discussed the impact of timing and weather conditions and achieving optimal injection and incorporation. A follow-up session is under development for 2015 to demonstrate how to adjust manure application equipment to achieve better incorporation and injection. (*Daniel Andersen, Agricultural & Biosystems Engineering*)

Extension fact sheets on odor and manure. A set of new or revised extension fact sheets are under development and will cover topics that include: acidification, aeration, anaerobic digestion, composting, impermeable covers, permeable covers, manure additives, segregation of manure solids and liquids, and solids separation. (*Daniel Andersen, Agricultural & Biosystems Engineering*)

9 Handout

Floodplain Mapping Status

January 2015



Iowa Department of Natural Resources

County Status	Description
	Watershed Data Collected
	Calculating Flood Flows and Depths
	Developing Draft Flood Hazard Products
	Draft Flood Hazard Products Delivered
	FEMA Review
	Effective Flood Insurance Rate Map (FIRM)
	LIDAR Based

	County
	HUC 8 Watershed
	HUC 8 Watershed
	Non Disaster Declared County
	Army Corps of Engineers Section 22 HUC 8 Watershed

* Denotes counties with Effective HMTAP FIRMs that used LIDAR

IOWA STATE UNIVERSITY
Extension and Outreach

AMPAT
AIR MANAGEMENT PRACTICES ASSESSMENT TOOL
www.agronext.iastate.edu/ampat

Web-based tool to help producers evaluate and mitigate odors and emissions from three source areas

Animal housing



Storage and handling



Land application

Colored-coded scorecard for quick reference

- GREEN** High impact on pollutant
- YELLOW** Medium impact on pollutant
- RED** Low impact on pollutant

	Ammonia	H ₂ S	Odor	Dust and Particulates	Cost
Biofilter	Yellow	Green	Green	Green	\$\$
Composting	Red	Yellow	Yellow	Red	\$-\$\$
Application	Green	Green	Green	Green	\$-\$\$



AMPAT was developed in part through funding from the National Pork Board

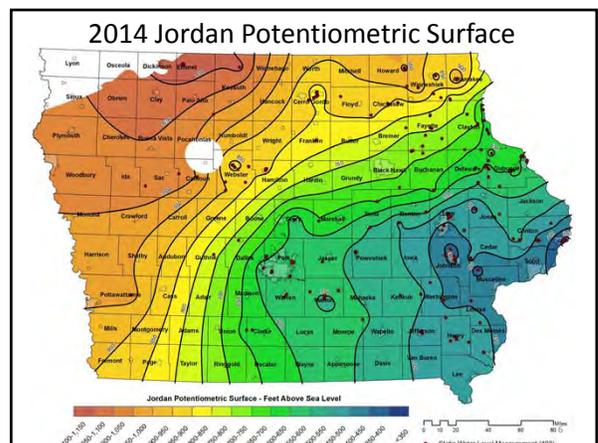
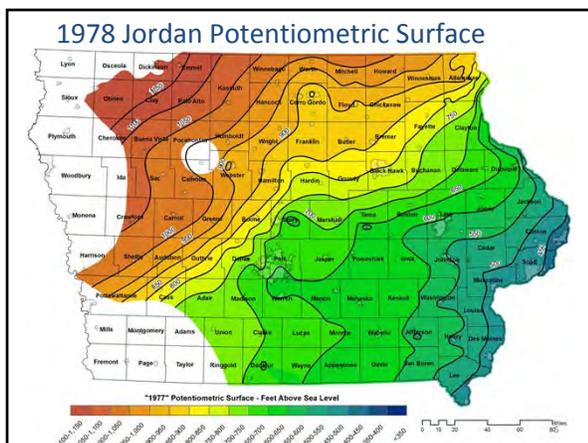
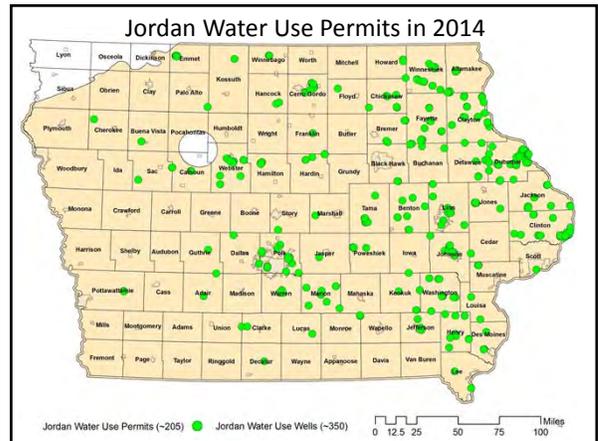
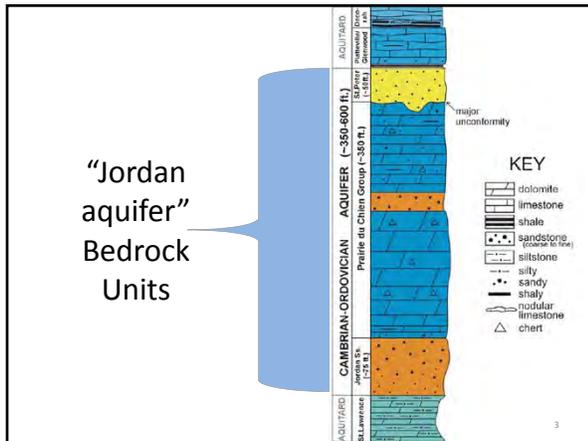
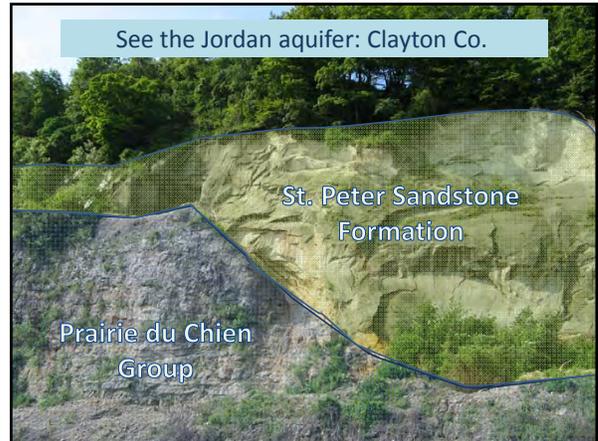
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funding from the National Pork Board

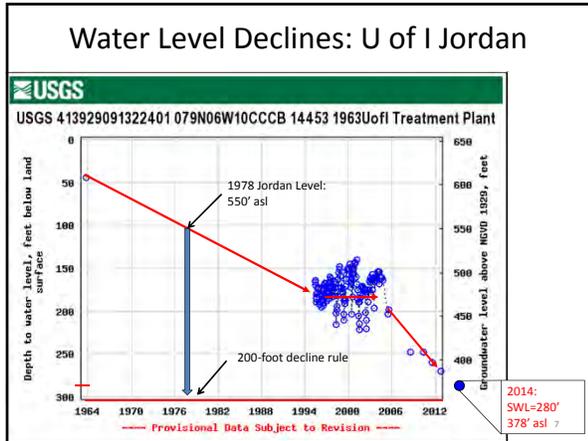
Extension programs are available to all without regard to race, color, national origin, religion, sex, age, or disability.

Proposed Jordan Rule Change

EO-80 Stakeholder Group Members:

Name	Organization
John Crotty	Iowa Environmental Council
Shawn Kerrick	Koch Nitrogen
Gale McIntosh	Northway Pump
Jill Soenen	Iowa Association of Municipal Utilities
Todd Steigerwaldt	City of Marion (Water Works)
Becky Svatos	Stanley Consultants, Iowa ABI
Nancy Couser	Environmental Protection Commission



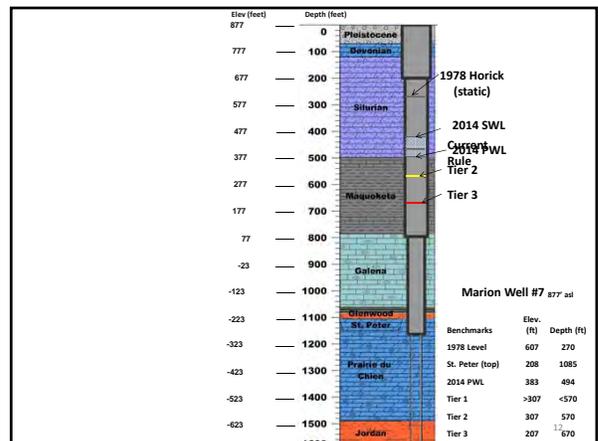


Stakeholder Item	Stakeholder Text	DNR Rule Chapter
1	Define an action level by which a Tier 1 well becomes a Tier 2 well. Consider using pumping levels, past actual static levels, and/or models to determine the action level.	52.4(3) e & f
2	Define protected water source areas based on all available data (well levels, models, etc.). Include variance options that could lead to exclusion of a well from the protected area.	53.7(3) & 53.7(4) & 52.4(3) i
4	Require a site-specific water conservation plan that is reviewed and approved by IDNR (567 IAC 52.9). a. The permittee should set a defined annual usage percent reduction target that will prevent them from reaching the Tier 3 drawdown limit.	52.4(3) h & k
5	We recommend enforcement if the conservation plan is not implemented.	52.4(3) h
6	We recommend reduced allocations if the conservation plan is not implemented.	52.4(3) h
7	We recommend revocation of permit if the conservation plan is not implemented.	52.4(3) h
10	Define an action level by which a Tier 2 well (or group of Tier 2 wells) becomes a Tier 3 well (or group of Tier 3 wells).	52.4(3) g
11	Consider using water pumping levels, past actual static levels, and/or models to determine the action level. We wanted to allow additional drawdown, but not a large additional drawdown that may have unanticipated negative consequences.	52.4(3) g & l
12	Require reduced allocations and other aggressive water conservation plans be implemented.	52.4(3) i & k
16	Recommend switching from static water level to pumping water level measurements. If implemented, IDNR must clearly define in permits how pumping levels should be measured (i.e., drawings, written guidance, IDNR on-site tech. support, etc.).	52.4(3) f & g
18	Creation of protected water source areas where the Flow Model has identified specific locations/regions where the Jordan Aquifer static water level is rapidly depleting. We agree with IDNR's proposed protected source areas.	53.7(3) & 53.7(4)
25	Geothermal use wording in draft regulations document received from DNR April 2014 is acceptable (no "pump and dump" geothermal withdrawals from the Jordan Aquifer), 52.4(3) b	52.4(3) b & c
26	Recommend that no new Jordan Aquifer withdrawals for once-through (single-pass) cooling water use be allowed. If Jordan Aquifer water is allocated for cooling, the facility must use cooling towers or other methods to reuse the water.	52.4(3) b & c
28	Require that initial contact for all new "major" Jordan wells go through IDNR (before county sanitarians). All boring logs get submitted to the DNR.	52.4(3) d
30	Recommend switching from 10-year permit renewal to 5-year permits for Jordan Aquifer users. [Implement authority under 567 IAC 52.5(3)]	52.4(3) d
27* (in current rule)	The 200 gpm limits on agricultural, recreational, and aesthetic uses in existing rules are adequate. Economics of constructing a Jordan well with a limit of 200 gpm would deter most applicants	52.4(3) a

- ### Current Rule
- IAC 567 Chapter 52.4(3)c.
 - 200 gpm restriction on irrigation/recreational use
 - 2000 gpm restriction on industrial/power generation use
 - Two hundred (200) foot limit on the decline of groundwater piezometric levels. The maximum collective long-term decline in groundwater piezometric levels in the Cambrian Jordan Sandstone Aquifer in any high use area will not be permitted to exceed 200 feet from the 1977 baseline as determined from available records of the department's Iowa Geological Survey (IGS).

- ### Proposed Jordan Rule
- Two hundred gallon per minute restriction on irrigation, recreational, or aesthetic uses.
 - Two thousand gallon per minute restriction on industrial or power generation uses.
 - Limited cooling and geothermal use.

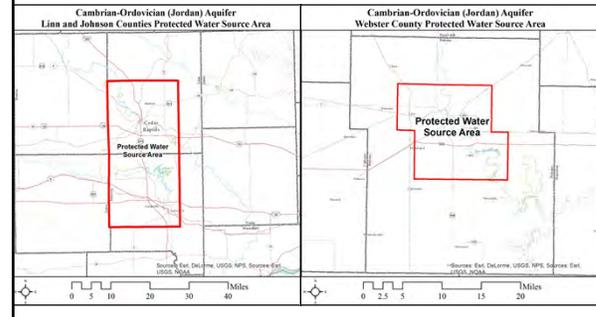
- ### Proposed Jordan Rule
- 5-year cycle for Jordan aquifer high capacity permits and wells.
 - New tiering criteria to classify each Water Use Jordan well into one of three tiers, depending upon the **pumping water levels** as compared to the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer at that location.
 - Tier 1: <300 ft or 50% decline
 - Tier 2: 300-400 ft or 50-75% decline
 - Tier 3 >400 ft decline
 - Require a water use reduction plan for wells classified in Tier 2 and Tier 3 to minimize the Jordan aquifer withdrawals.



Proposed Rule

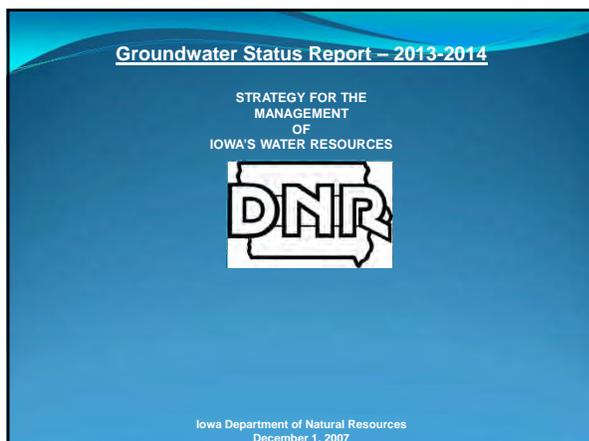
- The creation of two new protected source areas in portions of Johnson/Linn Counties and Webster County for Jordan aquifer permits, which will require the Department to conduct the well construction permitting within that defined area.

Protected Water Source Areas



Proposed Rule Timeline

- The Department is proposing three public hearings:
 - April 8, 2015 at 1 p.m., Coralville Public Library
 - April 9, 2015 at 11 a.m., Wallace State Office Building in Des Moines
 - April 10, 2015 at 11 a.m., Fort Dodge Public Library
- The public comment period would end April 14, 2015.



Goals

- **Goal 1:** Characterize Iowa's surface and groundwater resource availability, quality, use, and sustainability.
- **Goal 2:** Identify and estimate water use and the impact on water sources.
- **Goal 3:** Make necessary policy recommendations for the sustainable use of Iowa's water resources.
- **Goal 4:** Implement a comprehensive, real-time water resource permitting, management, and development system.
- **Fully-Funded Cost:** \$3M/yr. **Actual Funding:** \$850K/yr

Accomplishments

• Aquifer Models

- Dakota Sandstone - NW Iowa – 2008
- Jordan Aquifer - Statewide – 2009
- West Nishnabotna alluvial-stream system – 2010
- Des Moines alluvial-stream system - Palo Alto Co – 2011
- Silurian Aquifer – EC Iowa – 2011
- Mississippian Aquifer - NC Iowa – 2012-3
- Lower Raccoon River – alluvial-stream system – 2013

Accomplishments

• Aquifer Studies

- Rock River alluvial-stream system – 2012-3
- Floyd River alluvial-stream system – 2012-3
- Ocheyedan River alluvial-stream system – 2014
- WC and SW IA – Dakota and buried sand and gravel aquifers: exploration and initial characterization – 2015

Accomplishments

• Water Allocation Program and Data

--Database development - Electronic submittals - Use of hydrogeologic reports and models – Data Sharing

• Database Compatibility

--Better meshing of geologic, groundwater quality, drinking water, public and private well databases.

• Service to Iowans

--Assistance to many communities and businesses for water development, interference complaints, drought response.

Accomplishments

• Policy Review

- Formalize allocation priorities.
- Encourage drought planning and conservation.
- Study items:
 - Protected flows
 - Missouri River-Groundwater Connections
 - Wastewater Injection

Ongoing Needs

- Numerous key groundwater sources yet to be characterized/modeled.
- Monitoring of aquifer, water table, and soil moisture levels.
- Comprehensive water use estimates by source and sector.
- Targeted investigations.
- Model / study updates.

Groundwater Status Summary

- Jordan Aquifer – Significant declines in high-use areas.
- Silurian Aquifer – Localized large declines, future use.
- Mississippian and Dakota Aquifers – Few issues likely without major increases in withdrawals.
- Western Iowa alluvial-stream aquifers – Drought, RWS, Livestock.

State Geologist's Annual Report

- Provided as information - no Commission Action needed.

Questions?

Bob Libra
State Geologist of Iowa
robert.libra@dnr.iowa.gov



IOWA STATE UNIVERSITY

Department of Agricultural and Biosystems Engineering

Devin Maurer¹, Jacek A. Koziel^{1*}, Jay Harmon¹, Steve Hoff¹ and Angela Rieck-Hinz²

Air Management Practices Assessment Tool (AMPAT) Literature Database

AMPAT Home Page >

Topics ▼

- Animal Housing
- Manure Storage & Handling
- Land Application

Other Links >

- Literature Database >
- Photo Gallery >
- Definitions >
- National Pork Board >
- Animal Agriculture & Air Quality >

Home Page

The purpose of the Air Management Practices Assessment Tool (AMPAT) is to provide an objective overview of mitigation practices best suited to address odor, emissions and dust at your livestock operation so that livestock and poultry producers may compare and narrow their options of mitigation techniques. Practices are divided into three categories by source: 1) Animal Housing; 2) Manure Storage & Handling; and 3) Land Application. Each mitigation practice has an individual page which includes a printable fact sheet and a short online slide presentation. There is a conservative estimate of the range in effectiveness for ammonia, hydrogen sulfide, dust, odor, volatile organic compounds, and greenhouse gases, and a relative cost (one, two, or three dollar signs). To obtain more information for any given practice, simply click on that practice.

Animal Housing



Practices that mitigate emissions from buildings housing animals.

Manure Storage & Handling



Practices that mitigate emissions from the manure storage facility or associated handling areas.

Land Application



Practices that mitigate emissions during land application of manure.

¹ Department of Agricultural and Biosystems Engineering; ² Department of Agronomy

*koziel@iastate.edu, 515-294-4206

Introduction

- The livestock and poultry industry needs a current, science-based guide for proven air quality mitigation technologies.
- This will ultimately help the industry to focus on mitigation efforts with the greatest impact potential.
- Scientific literature review of mitigation methods and technologies for aerial emissions of odor, volatile organic compounds (VOCs), ammonia, hydrogen sulfide, and greenhouse gases (GHGs) from livestock and poultry operations.
- Research summaries were built on and are complimentary to the National Pork Board-funded project "Air Management Practices Assessment Tool (AMPAT)", an on-line user-friendly tool.
- The purpose of the AMPAT is to guide users through a process of determining which mitigation practices are best suited to the user's operation and user-defined objectives.



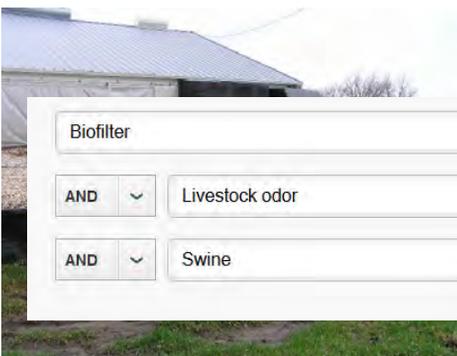
Methodology

- The online scientific database, Web of Science, is the primary medium through which published research was found.
- Keywords (Odor, Air Quality, Livestock, Poultry, Volatile Organic Compounds, Ammonia, Hydrogen Sulfide, Greenhouse Gas, Mitigation) are being used as search terms in our Web of Science searches.
- Peer-reviewed articles detailing research done on relevant mitigation methods and technologies are discovered and reviewed, and the desired information is extracted from them.



Methodology

- Web based scientific literature database.
- Key word search: Biofilter, Livestock odor, Swine.



Web of Science™ | InCites™ | Journal Citation Reports® | Essential Science Indicators™ | EndNote®

WEB OF SCIENCE™

THOMSON REUTERS

Search | All Databases | Marked List

Welcome to the new Web of Science® View a brief tutorial.

Click here for tips to improve your search.

Basic Search

Biofilter Topic

AND Livestock odor Topic

AND Swine Topic

+ Add Another Field | Reset Form

1 field (Topic)

Search

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Choose what I share

Methodology

- Relevant literature.
- Searches can be refined.

The screenshot shows a search interface with the following elements:

- Search Bar:** Contains the text "Search".
- Results:** 17 (from All Databases). You searched for: TOPIC: (Swine) AND TOPIC: (Livestock odor) AND TOPIC: (Swine) ...More
- Refine Results:** Includes a search box for "Search within results for:" and a "Refine" button.
- Databases:** A list of databases with a dropdown arrow.
- Research Domains:** Includes "SCIENCE TECHNOLOGY" and a "Refine" button.
- Research Areas:** Includes "AGRICULTURE" and a "Refine" button.
- Sort by:** Publication Date - newest to oldest.
- Results List:**
 - 1. Aerial Pollutants in Swine Buildings: A Review of Their Characterization and Methods to Reduce Them**
By: Hanson, Loring; Andres, Yves; Dumont, Eric
ENVIRONMENTAL SCIENCE & TECHNOLOGY Volume: 46 Issue: 22 Pages: 12287-12301 Published: NOV 20 2012
Buttons: Get it @ IOU, View Abstract
 - 2. Butyric Acid- and Dimethyl Disulfide-Assimilating Microorganisms in a Bioreactor Treating Air Emissions from a Livestock Facility**
By: Kottmann, Anja; Lindhölz, Sabine; Fellert, Anders, et al.
APPLIED AND ENVIRONMENTAL MICROBIOLOGY Volume: 77 Issue: 24 Pages: 8995-8994 Published: DEC 2011
Buttons: Get it @ IOU, View Abstract
 - 3. Ammonia emissions from livestock industries in Canada: Feasibility of abatement strategies**
By: Carey, Richard
ENVIRONMENTAL POLLUTION Volume: 158 Issue: 8 Pages: 2618-2626 Published: AUG 2010
Buttons: Get it @ IOU, View Abstract
- Times Cited:** 22 (from All Databases)
- Buttons:** Select Page, Save to EndNote online, Add to Marked List, Create Citation Report.

4. **Evaluation of Wood Chip-Based Biofilters to Reduce Odor, Hydrogen Sulfide, and Ammonia from Swine Barn Ventilation Air**

By: Chen, Lide; Hoff, Steven; Cai, Lingshuang; et al.
 JOURNAL OF THE AIR & WASTE MANAGEMENT ASSOCIATION Volume: 59 Issue: 5 Pages: 520-530
 Published: MAY 2009

Get it @ IOU View Abstract



Methodology

- Literature is reviewed for relative livestock mitigation information.

Downloaded by [Iowa State University] at 07:30 30 July 2014



ABSTRACT

A pilot-scale biofilter was developed in which two types of wood chips (western cedar [WC] and 2-in. hardwood [HW]) were examined to treat odor emissions from a deep-pit swine finishing facility in central Iowa. The biofilters were operated continuously for 13 weeks at different airflow rates resulting in variable empty bed residence times (EBRTs) from 1.6 to 7.3 sec. The effects of three media moisture levels were also evaluated. A dynamic forced-choice olfactometer was used to evaluate odor concentrations from both the control (inlet) plenum and biofilter treatments (outlet). Hydrogen sulfide (H₂S) and ammonia (NH₃) concentrations were also measured from these olfactometry samples. Solid-phase microextraction (SPME) polydimethylsiloxane (PDMS)/divinylbenzene (DVB) 65-µm fibers were used to extract volatile organic compounds from both the control plenum and biofilter treatments. Analyses of separated odors were carried out using a gas chromatography-mass spectrometry-olfactometry (GC-MS-O) system. Static sample results indicated that both types of chips achieved significant reductions in odor (average 70.1 and 82.3% for HW and WC, respectively), H₂S (average 81.8 and 88.6% for HW and WC, respectively) and NH₃ (average 43.4 and 74% for HW and WC, respectively) concentrations. GC-MS-O aromagram results showed both treatments reached high odor reduction efficiency (average 99.4 and 99.8% for HW and WC, respectively). The results also showed that maintaining proper moisture content and a minimum EBRT are critical to the success of wood chip-based biofilters.

PAPER

on of Wood Chip-Based Biofilters to Reduce Odor, an Sulfide, and Ammonia from Swine Barn on Air

Chen, Lide; Hoff, Steven; Cai, Lingshuang; et al.

Swine finishing facilities are a major source of odor, hydrogen sulfide (H₂S), and ammonia (NH₃) emissions. The reduction of odors emitted from livestock and poultry production systems continues to present challenges for researchers, livestock and gas emissions from building and waste storage systems are byproducts of anaerobic decomposition and transformation of organic matter by microorganisms. These byproducts result in a complex mixture of over 100 volatile compounds of which 30 have a detection threshold of 0.001 mg/m³ or less and hence are more likely to be associated with odor nuisance. These compounds cover a broad spectrum and generally exist in low concentrations. Any technology used to reduce emissions must be able to treat a broad spectrum of diverse compounds. Various air pollution control technologies have been invented and applied, such as activated carbon adsorption, wet scrubbing, and molten sulfur absorbers. These methods either transfer odorous materials from the gas phase to scrubbing liquids or solid absorbents, and their effectiveness have resulted in expensive and solid waste compounds. A biofilter, which can be cost-effective and has the ability to treat a broad spectrum of gaseous compounds, has been regarded as a promising odor and gas control technology that is gaining acceptance in agriculture. The operational principle of a biofilter is that the microorganisms are grown through a filter media where microorganisms reside. The components in the air diffuse into the liquid surrounding the biofilm where bacteria degrade them to carbon dioxide, water, inorganic salts, and biomass. Several research studies using compost-based biofilters have been conducted with significant reductions in odor and specific gases reported. Most of these studies reported H₂S and NH₃ removal rates of 70 and 80%, respectively, at an observed average odor and hydrogen sulfide (H₂S) removal rates of 70 and 80%, respectively, at an observed average H₂ removal efficiency between 90 and 100% and an average NH₃ removal efficiency between 70 and 100% with 20% media moisture content and 20-day residence time. Martinez et al. also found an odor reduction efficiency up to 90%.

Selecting the proper biofilter media is an important step toward developing a successful biofilter. Williams and Miller¹⁰ and Bennett and Luster¹¹ pointed out that particle stability was one of the key factors to be considered for microorganisms to thrive, including enough moisture and nutrients; (2) large surface area to maximize

Methodology

- Relative information is highlighted for quick location in the work.



ABSTRACT

A pilot-scale biofilter was developed in which two types of wood chips (western cedar [WC] and 2-in. hardwood [HW]) were examined to treat odor emissions from a deep-pit swine finishing facility in central Iowa. The biofilters were operated continuously for 13 weeks at different airflow rates resulting in variable empty bed residence times (EBRTs) from 1.6 to 7.3 sec. The effects of three media moisture levels were also evaluated. A dynamic forced-choice olfactometer was used to evaluate odor concentrations from both the control (inlet) plenum and biofilter treatments (outlet). Hydrogen sulfide (H₂S) and ammonia (NH₃) concentrations were also measured from these olfactometry samples. Solid-phase microextraction (SPME) polydimethylsiloxane (PDMS)/divinylbenzene (DVB) 65-μm fibers were used to extract volatile organic compounds from both the control plenum and biofilter treatments. Analyses of separated odors were carried out using a gas chromatography-mass spectrometry-olfactometry (GC-MS-O) system. Static sample results indicated that both types of chips achieved significant reductions in odor (average 70.1 and 82.3% for HW and WC, respectively), H₂S (average 81.8 and 88.6% for HW and WC, respectively) and NH₃ (average 43.4 and 74% for HW and WC, respectively) concentrations. GC-MS-O arologram results showed both treatments reached high odor reduction efficiency (average 99.4 and 99.8% for HW and WC, respectively). The results also showed that maintaining proper moisture content and a minimum EBRT are critical to the success of wood chip-based biofilters.

NIJAL PAPER

Evaluation of Wood Chip-Based Biofilters to Reduce Odor, Hydrogen Sulfide, and Ammonia from Swine Barn Ventilation Air

Lide Chen, Steven Hoff, Linghuang Cai, Jaros Koziel, and Brian Zelle
Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, IA

FACT

A pilot-scale biofilter was developed in which two types of wood chips (western cedar [WC] and 2-in. hardwood [HW]) were examined to treat odor emissions from a deep-pit swine finishing facility in central Iowa. The biofilters were operated continuously for 13 weeks at different airflow rates resulting in variable empty bed residence times (EBRTs) from 1.6 to 7.3 sec. The effects of three media moisture levels were also evaluated. A dynamic forced-choice olfactometer was used to evaluate odor concentrations from both the control (inlet) plenum and biofilter treatments (outlet). Hydrogen sulfide (H₂S) and ammonia (NH₃) concentrations were also measured from these olfactometry samples. Solid-phase microextraction (SPME) polydimethylsiloxane (PDMS)/divinylbenzene (DVB) 65-μm fibers were used to extract volatile organic compounds from both the control plenum and biofilter treatments. Analyses of separated odors were carried out using a gas chromatography-mass spectrometry-olfactometry (GC-MS-O) system. Static sample results indicated that both types of chips achieved significant reductions in odor (average 70.1 and 82.3% for HW and WC, respectively), H₂S (average 81.8 and 88.6% for HW and WC, respectively) and NH₃ (average 43.4 and 74% for HW and WC, respectively) concentrations. GC-MS-O arologram results showed both treatments reached high odor reduction efficiency (average 99.4 and 99.8% for HW and WC, respectively). The results also showed that maintaining proper moisture content and a minimum EBRT are critical to the success of wood chip-based biofilters.

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CONCLUSIONS
The biofilter was developed in which two types of wood chips (western cedar [WC] and 2-in. hardwood [HW]) were examined to treat odor emissions from a deep-pit swine finishing facility in central Iowa. The biofilters were operated continuously for 13 weeks at different airflow rates resulting in variable empty bed residence times (EBRTs) from 1.6 to 7.3 sec. The effects of three media moisture levels were also evaluated. A dynamic forced-choice olfactometer was used to evaluate odor concentrations from both the control (inlet) plenum and biofilter treatments (outlet). Hydrogen sulfide (H₂S) and ammonia (NH₃) concentrations were also measured from these olfactometry samples. Solid-phase microextraction (SPME) polydimethylsiloxane (PDMS)/divinylbenzene (DVB) 65-μm fibers were used to extract volatile organic compounds from both the control plenum and biofilter treatments. Analyses of separated odors were carried out using a gas chromatography-mass spectrometry-olfactometry (GC-MS-O) system. Static sample results indicated that both types of chips achieved significant reductions in odor (average 70.1 and 82.3% for HW and WC, respectively), H₂S (average 81.8 and 88.6% for HW and WC, respectively) and NH₃ (average 43.4 and 74% for HW and WC, respectively) concentrations. GC-MS-O arologram results showed both treatments reached high odor reduction efficiency (average 99.4 and 99.8% for HW and WC, respectively). The results also showed that maintaining proper moisture content and a minimum EBRT are critical to the success of wood chip-based biofilters.

one of the AS & Risk Management associates

Issue 18 May 2008

Methodology

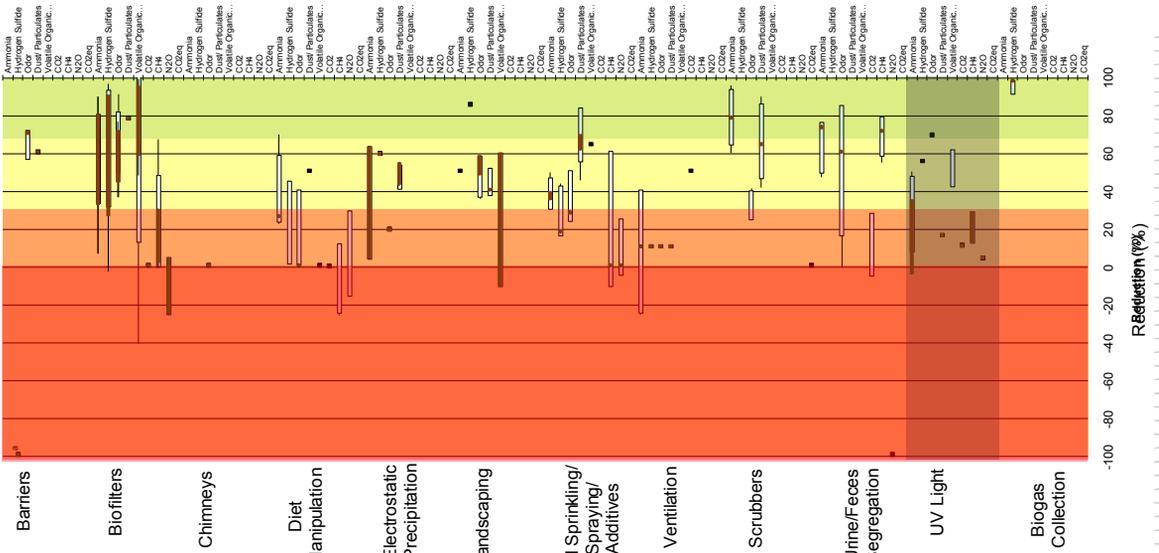
- Relative information is compiled into spreadsheet.



Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2009. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. *J. Air Waste Manage.* 53: 520-530.

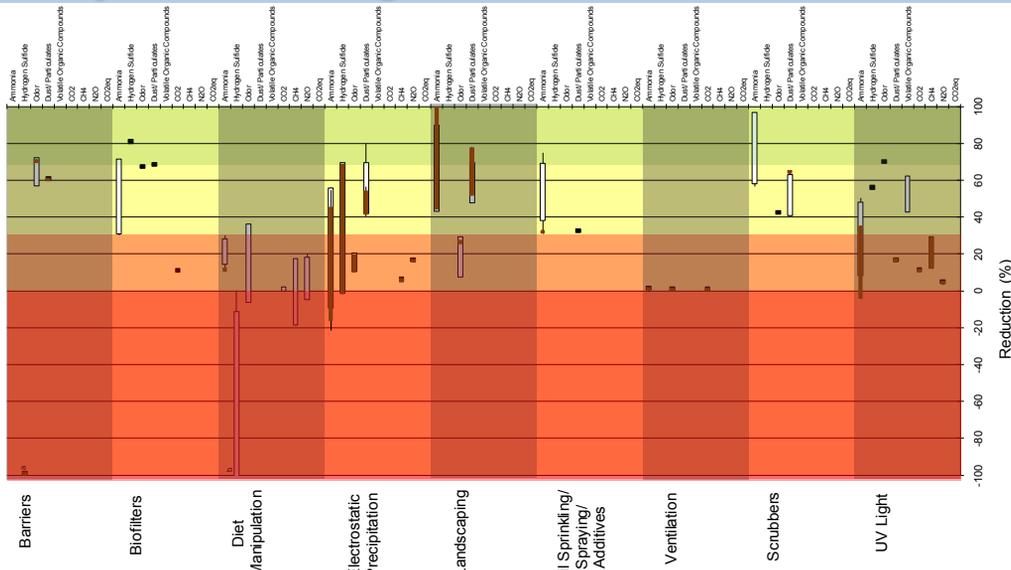
Treatment	Year	DOI Reference	Ammonia	Hydrogen Sulfide	Odor	Dust	Organic Compounds	Greenhouse Gases	Cost	Notes
18	2009	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2009. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 53: 520-530.	74%, 43.4%	88.6%, 81.8%	82.3%, 70.1%	No Data	99.8%, 99.4%	No Data	No Data	Conducted on farm over 13 weeks. Compared western cedar and hardwood wood chips respectively.
14	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.
15	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.
16	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.
17	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.
18	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.
19	2008	Chen, L., Hoff, S., Cai, L., Koziel, J., Zelle, B. 2008. Evaluation of wood chip-based biofilters to reduce odor, hydrogen sulfide, and ammonia from swine barn ventilation air. <i>J. Air Waste Manage.</i> 52: 1000-1008.	74%	88.6%	82.3%	No Data	99.8%	No Data	No Data	Conducted on farm over 13 weeks.

Swine Housing



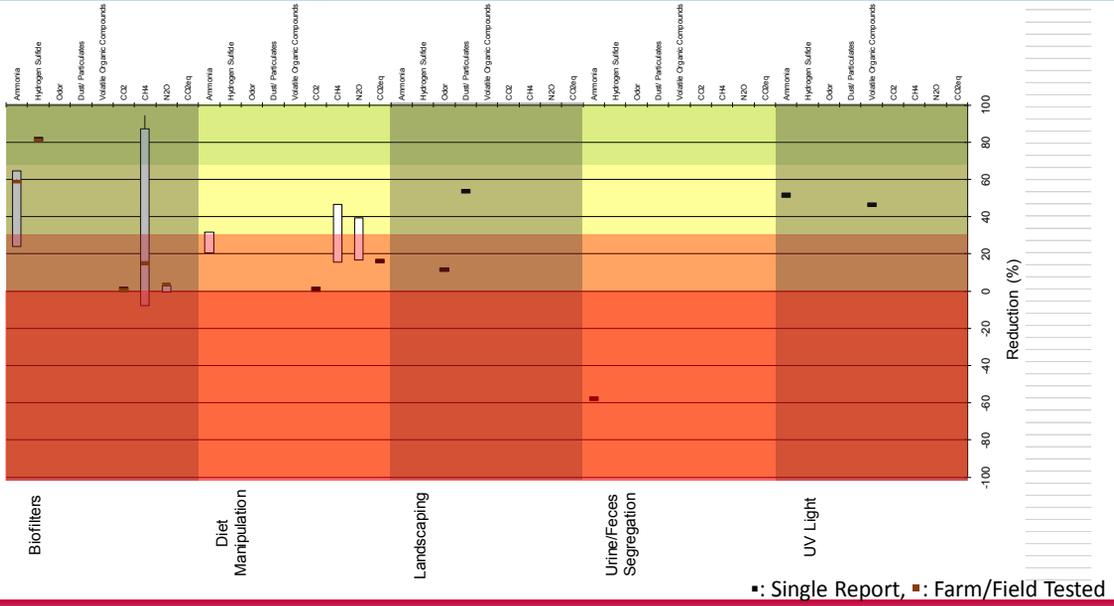
a: -200%, ■: Single Report, ■: Farm/Field Tested

Poultry Housing

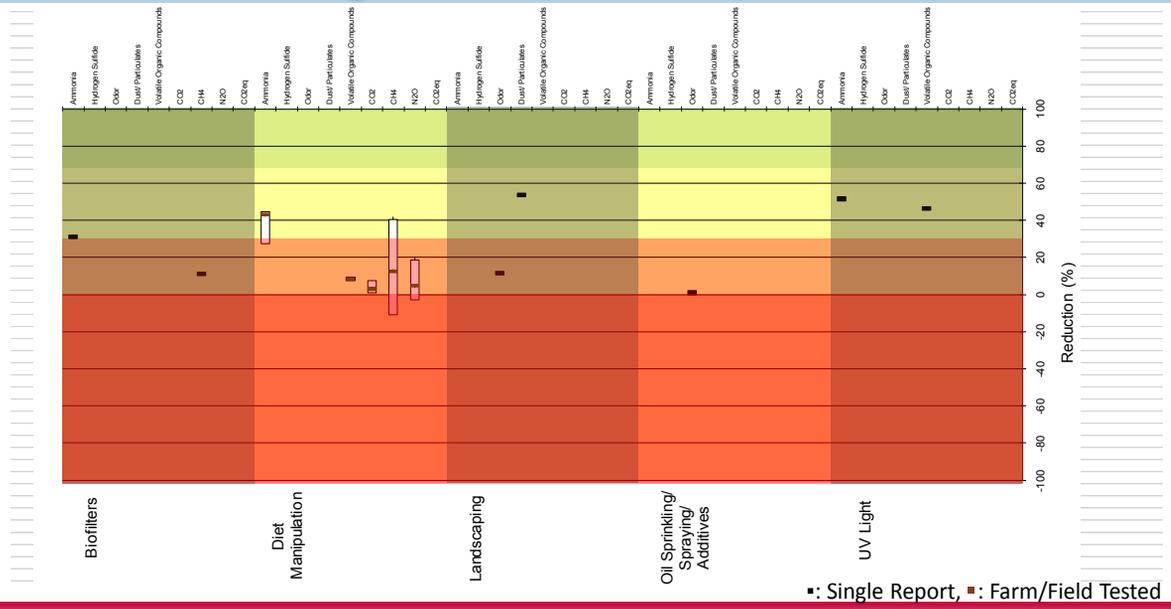


a: -200%, b: -158%, ■: Single Report, ■: Farm/Field Tested

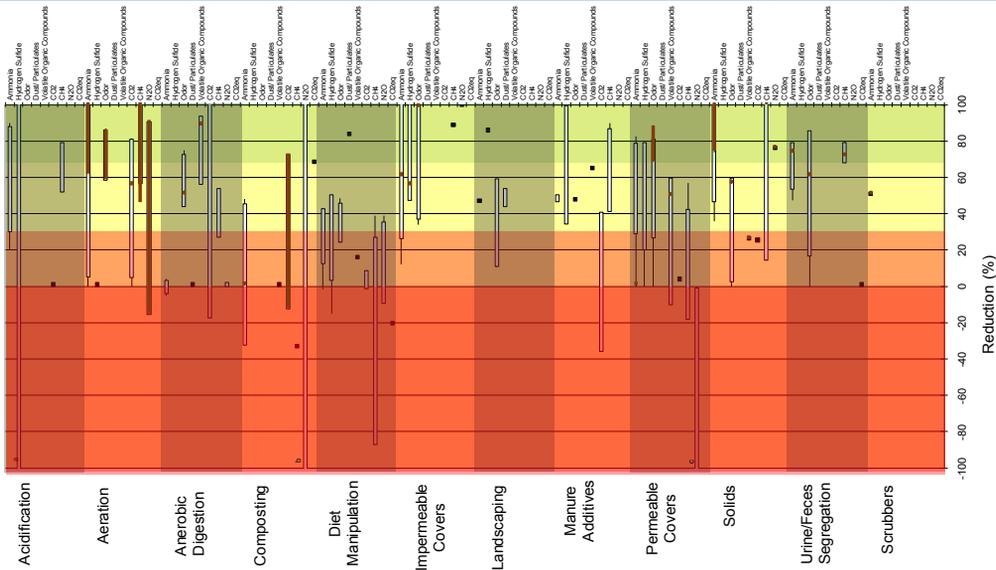
Dairy Housing



Beef Housing

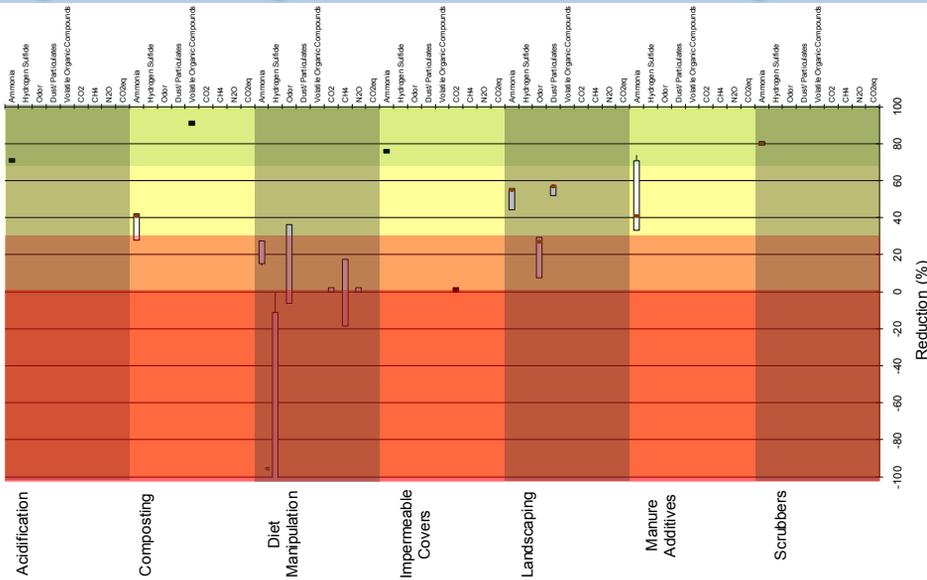


Swine Storage and Handling



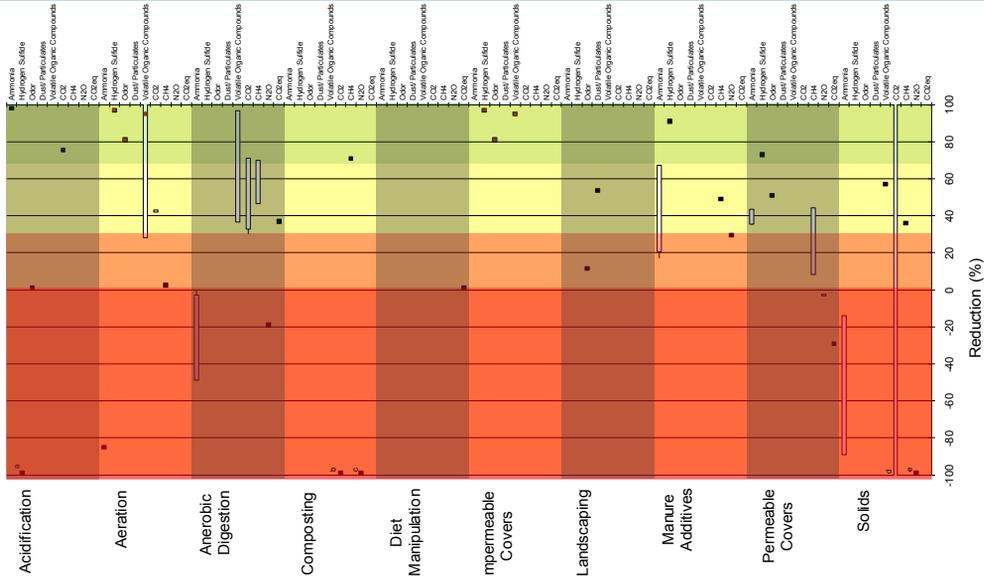
a: -683%, b: -1689%, c: -366%; □: Single Report, ■: Farm/Field Tested

Poultry Storage and Handling



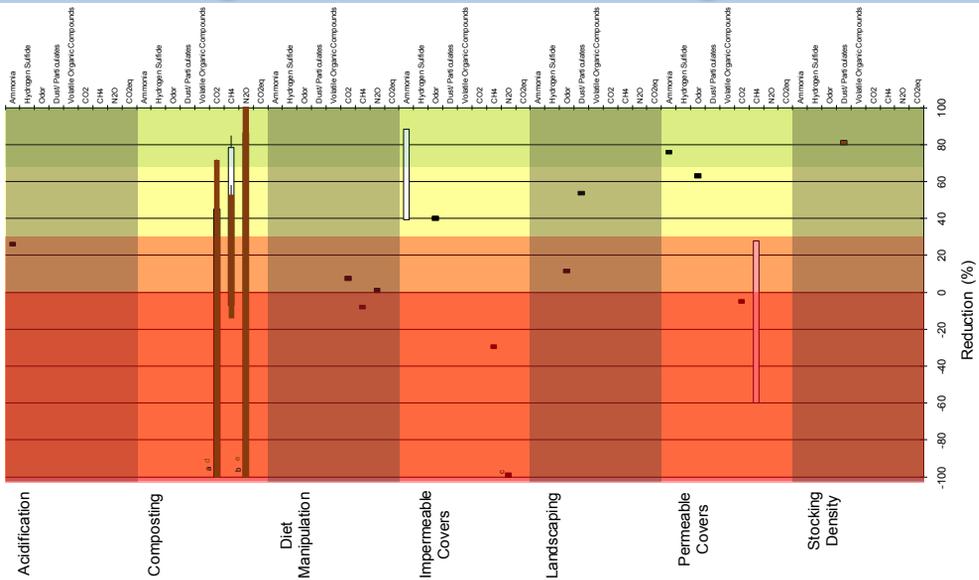
a: -158%; □: Single Report, ■: Farm/Field Tested

Dairy Storage and Handling



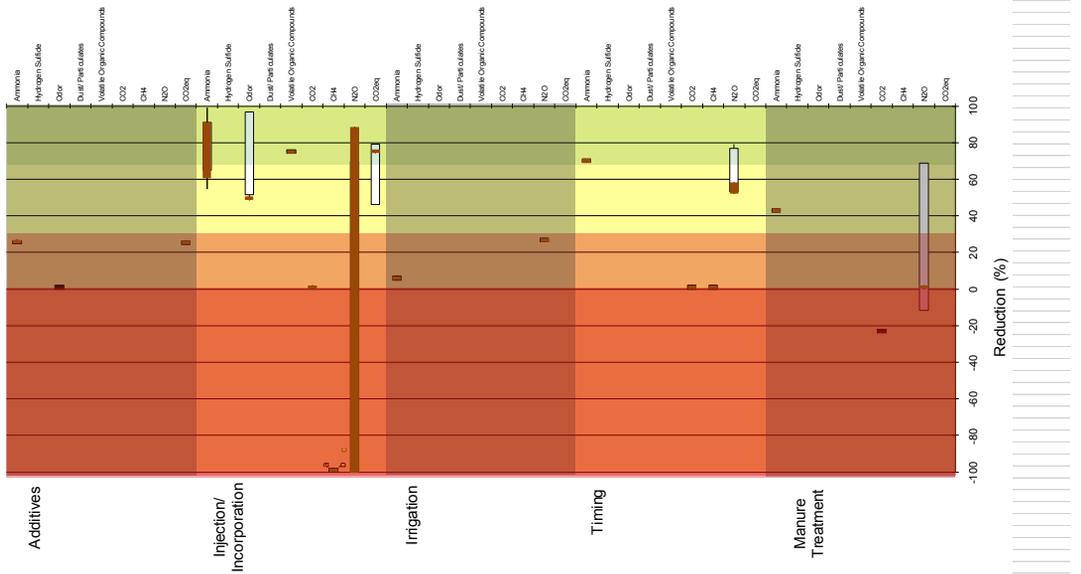
a: -6835%, b: -102%, c: -388%, d: -792%, e: -1240%, *: Single Report, ■: Farm/Field Tested

Beef Storage and Handling



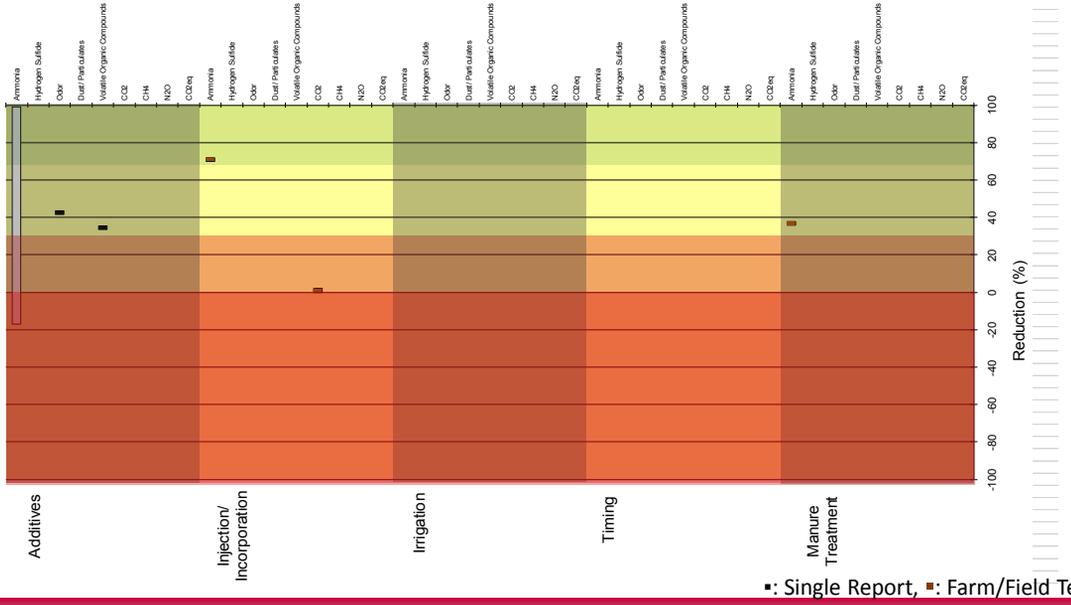
a: -153%, b: -626%, c: -890%, d: -119%, e: -608%, *: Single Report, ■: Farm/Field Tested

Swine Land Application



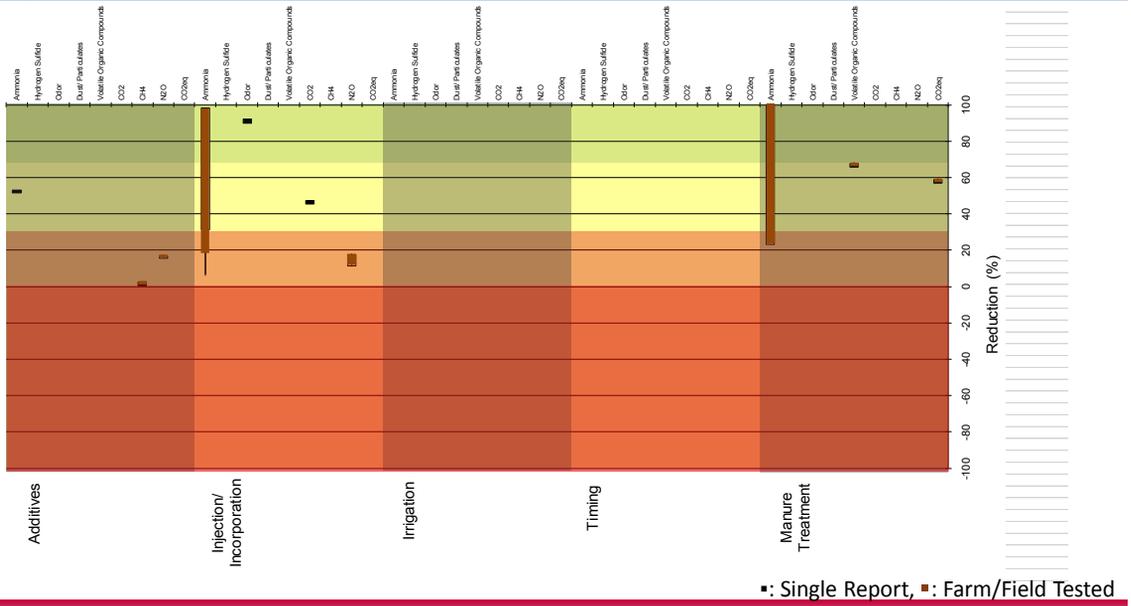
a: -969%, b: -271%, c: -321%, ■: Single Report, ■: Farm/Field Tested

Poultry Land Application

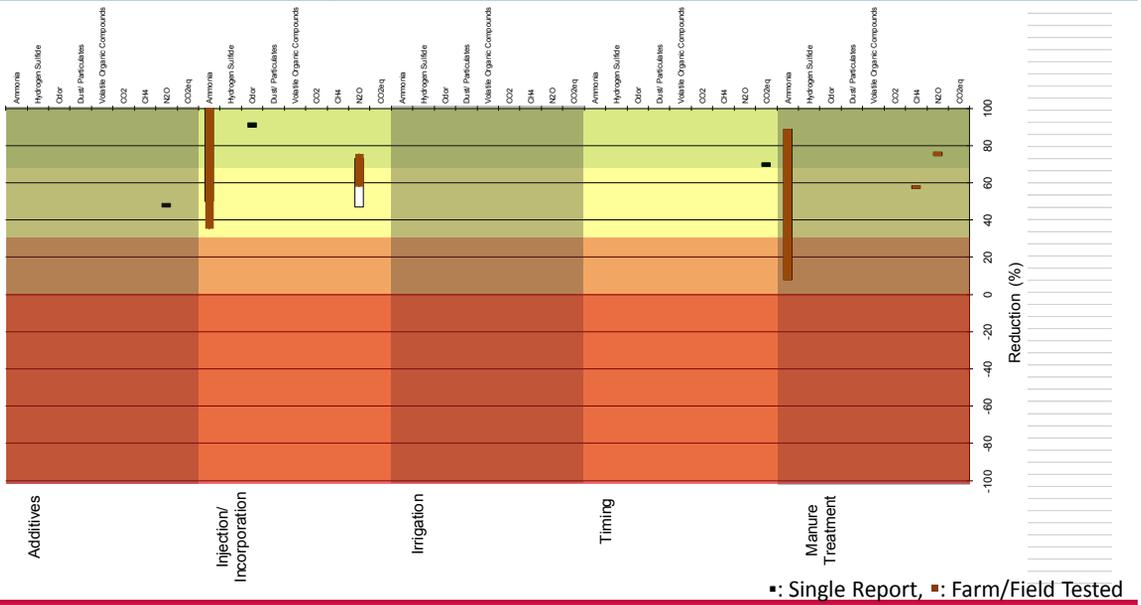


■: Single Report, ■: Farm/Field Tested

Dairy Land Application



Beef Land Application



Conclusions – Housing

- Biofilters was the most popular technology with 30 papers.
- Biofilters were the most farm tested and effective at mitigating the target emissions (Figure Below).
- Scrubbers and Urine/Feces Segregation are promising technologies for more farm scale testing.

	Reduction < 33%			33 < Reduction < 66%		Reduction > 67%		
Target Emission	Ammonia	Hydrogen Sulfide	Odor	Dust/ Particulate	Volatile Organic Compounds	Carbon Dioxide	Methane	Nitrous Oxide
Average Reduction	57%	63%	66%	78%	61%	Not Significant	24%	Increase

Conclusions – Storage and Handling

- Aeration, Anaerobic Digestion, Composting, Diet Manipulation, and Permeable Covers were the most popular technologies.
- Aeration was the most farm tested and effective at mitigating the target emissions (Figure Below).
- Impermeable Covers are a promising technology for more farm scale testing.

	Reduction < 33%			33 < Reduction < 66%		Reduction > 67%		
Target Emission	Ammonia	Hydrogen Sulfide	Odor	Dust/ Particulate	Volatile Organic Compounds	Carbon Dioxide	Methane	Nitrous Oxide
Average Reduction	56%	Not Significant	72%	No Data	No Data	43%	79%	38%

Conclusions – Land Application

- Injection/Incorporation was the most popular technologies with 35 papers.
- Injection/Incorporation was the most farm tested and effective at mitigating the target emissions (Figure Below).
- Manure Treatments are a promising technology for more farm scale testing.

	Reduction < 33%		33 < Reduction < 66%		Reduction > 67%			
Target Emission	Ammonia	Hydrogen Sulfide	Odor	Dust/ Particulate	Volatile Organic Compounds	Carbon Dioxide	Methane	Nitrous Oxide
Average Reduction	78%	No Data	74%	No Data	74%	Not Significant	Increase	Increase

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

**Selected ISU Livestock Odor and Air Quality
Research and Extension Activities**

January 2015

Air Management Practices Assessment Tool. AMPAT is an online resource that provides an objective overview of mitigation practices best suited to address odor, emissions and dust at Iowa livestock operations. AMPAT helps producers compare and narrow their options of the best mitigation techniques for animal housing, manure storage and handling and land application of manure. The tool provides conservative estimates of the effectiveness of mitigation plus the relative cost. It was originally developed in 2004.

- Phase 1: Funded by the National Pork Board, this project is updating the current site to include more recent mitigation techniques and to add impacts on volatile organic compounds and greenhouse gases. A new interface for easier side-by-side comparisons are included. Short video presentations and fact sheets are available for each of 21 technologies. *(Jay Harmon, Steve Hoff, Dan Andersen, Agricultural & Biosystems Engineering; Angie Rieck-Hinz, Agronomy)*
- Phase 2: Funded by the Indiana Soybean Alliance, this project will provide a comprehensive literature database for all major livestock and poultry species. This data will be available for researchers and others wanting to examine mitigation techniques at a deeper level. Results will be used to update and improve the AMPAT tool as new information emerges. *(Jacek Koziel, Jay Harmon, Steve Hoff, Agricultural & Biosystems Engineering; Angie Rieck-Hinz, Agronomy)*

Evaluation of polymer reduce emissions from swine finishing facilities. ISU scientist will conduct research to evaluate the efficacy of an acidic polymer from a private firm to potentially reduce ammonia, greenhouse gas and odor emissions from deep-pit swine manure storage areas. The project, which begins in summer 2014, will initially be a lab study under controlled conditions using manures of different sources and distinct dosing rates. Options for field-testing will be reviewed based on results of the study. *(Daniel Andersen, Jacek Koziel, Agricultural & Biosystems Engineering)*

Estimating methane emissions. ISU researchers developed a lab procedure to estimate manure's methane production rate and used field-measured variables to estimate methane emission from swine manure storage areas. They continue to work on methods to characterize manure's physical, chemical and biological properties and relate them to the methane production rate. The research is important to better understand and estimate the production and emission of this potent greenhouse gas from manure storage. *(Daniel Andersen, Agricultural & Biosystems Engineering)*

Anaerobic digestion's impact on odor, ammonia. ISU scientists are studying anaerobic digestion and energy generation from manure and how these processes may influence odor and ammonia emissions. They will evaluate how anaerobic digestion influences odor and ammonia during storage after digestion and undigested manure.

They will evaluate physical properties including solids content, particle size distribution and viscosity as well as chemical properties including pH, ammonia nitrogen content, chemical oxygen demand and volatiles solids. They will seek to relate these properties to the potential for ammonia and odor emission. The research begins the summer of 2014 and will run two years, with a Fulbright Scholar recruited for the project. *(Daniel Andersen, Jacek Koziel, Agricultural & Biosystems Engineering)*

Diets that reduce ammonia emissions from hen houses. Results from ISU research indicate that manipulating the diets of laying hens is a viable means of reducing ammonia emissions. The two-year field study involving commercial laying-hen houses in Iowa examined the effects of adding to diets a commercial feed additive called EcoCal or dried distillers grains with solubles (DDGS). The research results have been published in peer-reviewed journals. The feed additive diet reduced ammonia emissions by an average of 39 percent; the DDGS diet reduced emissions by 14 percent. In both cases, the diets had no negative effects on hen production performance as compared to the control diet. The project was funded by the USDA Natural Resource Conservation Service's Conservation innovation Grant Program and the United Egg Producers. *(Hongwei Xin and Hong Li, Agricultural & Biosystems Engineering)*

Environmental assessment of laying-hen housing systems. ISU scientists recently completed a study to quantify indoor air quality and gas and particulate emissions as part of a national project that is systematically assessing three different laying-hen housing systems. Data from the study, which are being published in peer-reviewed journals, provide baseline comparisons and emission values for conventional and alternative hen housing systems. The project was funded by the Coalition for Sustainable Egg Supply. *(Hongwei Xin, Tim Shepherd and Yang Zhao, Agricultural & Biosystems Engineering)*

Quantifying emissions from swine facilities. A first-of-its-kind study by Iowa State has filled information gaps on air emissions from swine facilities. Research and information on ammonia and greenhouse gas emissions from swine operations — particularly from breeding, gestation and farrowing facilities in the Midwest — has been meager. A research team quantified ammonia and greenhouse gas emissions from a 4,300-sow breeding, gestation and farrowing facility located in central Iowa. The research contributes to establishing accurate baseline emission rates for similar facilities in the Midwest and provide farmers with reliable data in making decisions on emission controls. The project was funded by the Iowa Pork Producers Association and administered by the National Pork Board. *(Hongwei Xin, Robert Burns and John Stinn, Agricultural & Biosystems Engineering)*

Improving environment and productivity of aviary hen housing. The goal of this newly funded research project is to improve the indoor environment and productivity of an alternative aviary (cage-free) hen housing system. The research will devise an innovative mitigation system that suppresses the generation of particulate matter, airborne bacteria and ammonia. An added benefit is that the system will relieve heat stress of hens caused by hot weather. In lab-scale experiments, the researchers will quantify the efficacy of spraying acidic electrolyzed water onto the litter (a mixture of hen manure and bedding materials) of aviary housing to reduce particulate matter, airborne bacteria and ammonia generation. They will design, install and field-test a spray system in a commercial aviary hen house, and quantify the impact of the spray system on reducing particles and emissions. They will evaluate the effects of the spray system on

hen behavior and welfare, and evaluate the efficacy of the system on heat stress relief in summertime. The project is funded by the USDA National Institute of Food and Agriculture. (*Hongwei Xin, Yang Zhao and Michelle Soupir, Agricultural & Biosystems Engineering; Tong Wang, Food Science and Human Nutrition; and Suzanne Millman, Veterinary Diagnostic & Production Animal Medicine.*)

Community Assessment Model (CAM) for Odor Dispersion. Since 2005, CAM has been a valuable preplanning tool offering guidance for hundreds of Iowa pork producers on where to build new facilities. The field-validated computer model helps assess potential site risk and determine how far odors from proposed sites will travel under a variety of atmospheric conditions. The model makes predictions based on historic weather patterns, type and size of facility and number of animals. CAM notes location of neighbors, other odor sources, number and age of animals, seasonal ventilation rates and more. The model estimates what percentage of time a neighbor may be exposed to odors. It factors in how odor-reduction technologies would benefit sites. ISU's Iowa Pork Industry Center and the Coalition to Support Farmers have partnered to advise farmers on selecting sites, including using CAM as a resource. Three papers on CAM's acceptance as a useful tool and evaluating its effectiveness have been published. (*Steve Hoff and Jay Harmon, Agricultural & Biosystems Engineering*)

Biofilters to mitigate odors, emissions. Biofilters can be an effective means to reduce odor and other gas emissions from ventilated animal and manure storage facilities. Iowa State hosted a biofilter conference on Aug. 20, 2014, to introduce producers, managers and owners to biofilters and how they may be used to mitigate emissions from animal feeding operations. The conference outlined factors such as costs, effectiveness, management and other details, and provide sources of science-based information on biofilters. (*Steve Hoff and Jay Harmon, Agricultural & Biosystems Engineering*)

Soybean-hull manure additive. Iowa State researchers conducted farm-scale testing of soybean peroxidase, a compound derived from soybean hulls for swine manure treatment and mitigation of key odor-causing gases, ammonia, hydrogen sulfide and greenhouse gas emissions. The researchers applied the ground soybean hulls-based product treatment through floor slats of swine housing. Over a month and a half, the treatment reduced ammonia by 22 percent, hydrogen sulfide by 80 percent and key odor-causing compounds from 14 percent to 48 percent. The estimated cost of treatment was \$1.45 per marketed pig and \$2.62 per marketed pig when the cost of labor was added, placing it at the lower range of comparable products. The project, funded by the National Pork Board, was completed in June 2014. (*Jacek Koziel, Agricultural & Biosystems Engineering*)

Extension manure applicator training. ISU organizes and delivers the annual Iowa Manure Applicator Certification program, a state-mandated training for confinement site and commercial manure applicators. The Iowa Department of Natural Resources contracts the program to ISU Extension. About 4,800 people were certified in the past year, with ISU faculty and extension specialists conducting workshops on regulatory requirements and odor control management practices. During the 2014 commercial applicators training, a module was presented on land application methods to conserve nutrients and minimize odor. The module discussed the impact of timing and weather conditions and achieving optimal injection and incorporation. A follow-up session is under development for 2015 to demonstrate how to adjust manure application equipment to achieve better incorporation and injection. (*Daniel Andersen, Agricultural & Biosystems Engineering*)

Extension fact sheets on odor and manure. A set of new or revised extension fact sheets are under development and will cover topics that include: acidification, aeration, anaerobic digestion, composting, impermeable covers, permeable covers, manure additives, segregation of manure solids and liquids, and solids separation. (*Daniel Andersen, Agricultural & Biosystems Engineering*)

Update on Odor Mitigation Extension and Research

Iowa DNR
Environmental Protection Commission
February 17, 2015

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Healthy People. Environments. Economies.

Representing Iowa State University



Jay D. Harmon, Ph.D., P.E.
Professor & Extension Ag Engineer
Agricultural & Biosystems Engineering



Jacek Koziel, Ph.D.
Associate Professor
Agricultural & Biosystems Engineering



Steven J. Hoff, Ph.D., P.E.
Professor
Agricultural & Biosystems Engineering



John Lawrence, Ph.D.
Associate Dean - Extension &
Outreach Programs
Director, Extension – Agriculture and
Natural Resources

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Air Management Practices Assessment Tool (AMPAT)

*Jay D. Harmon, Steve Hoff, Dan Andersen, Angie Rieck-Hinz,
Jacek Koziel, Devin Maurer*

EPC Meeting
February 17, 2015

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Goal

- Provide guidance to livestock producers in order that they might assess mitigation options
 - When addressing:
 - Odor
 - Ammonia emissions
 - Hydrogen sulfide emissions
 - Particulate matter emissions
 - Greenhouse gas emissions
 - Based on:
 - Effectiveness
 - Management
 - Costs

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Funding

AMPAT – National Pork Board



AMPAT Literature Database – Indiana Soybean Alliance



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Air Management Practices Assessment Tool

AMPAT Home Page

Home Page

The purpose of the Air Management Practices Assessment Tool (AMPAT) is to provide an objective overview of mitigation practices, best suited to address odor, emissions and dust at your livestock operation so that livestock and poultry producers may compare and narrow their options of mitigation techniques. Practices are divided into three categories by source: 1) Animal Housing, 2) Manure Storage & Handling, and 3) Land Application. Each mitigation practice has an individual page which includes a printable fact sheet and a short online slide presentation. There is a conservative estimate of the range in effect, loss for ammonia, hydrogen sulfide, dust, odor, volatile organic compounds, and greenhouse gases, and a relative cost (one, two, or three dollar signs). To obtain more information for any given practice, simply click on that practice.

Animal Housing

Practices that mitigate emissions from buildings housing animals.

Manure Storage & Handling

Practices that mitigate emissions from the manure storage facility or associated handling areas.

Land Application

Practices that mitigate emissions during land application of manure.

AMPAT was developed by [Iowa State University Extension and Outreach](#) and the [College of Agriculture and Life Sciences](#) with funding support from the [National Pork Board](#) through Cooperative Agreement NPB Project #12-006.

INDIANA SOYBEAN ALLIANCE

The compilation of the literature database to support AMPAT was funded by the Indiana Soybean Alliance.

pork checkoff

Contact Information
Jay Harmon, 4333 Elings Hall, Iowa State University, Ames, IA 50011, Phone: (515) 294-0554, jharmon@iastate.edu
Dan Andersen, 3348 Elings Hall, Iowa State University, Ames, IA 50011, Phone: (515) 294-4210, dsa@iastate.edu
Angela Rieck-Henz, 2104 Agronomy Hall, Iowa State University, Ames, IA 50011, Phone: (515) 231-2830, amr1eck@iastate.edu
Kathy Walker, Designer, 4300 Elings Hall, Iowa State University, Ames, IA 50011
Steve Hoff, 4331 Elings Hall, Iowa State University, Ames, IA 50011
Jacek Koziel, 4350 Elings Hall, Iowa State University, Ames, IA 50011
Devin Maurer, 4348 Elings Hall, Iowa State University, Ames, IA 50011

— Web site questions to [Lisa Urbinen](#)

AMPAT - 21 total technologies

AMPAT Home Page >

Topics >

Animal Housing

- Barriers
- Biofilters
- Chimneys
- Diet Manipulation
- Electrostatic Precipitation
- Landscaping
- Oil Sprinkling
- Pit Ventilation
- Scrubber
- Siting
- Urine/Feces Segregation
- UV Light
- Manure Storage & Handling
- Land Application

Animal Housing

	Ammonia	H ₂ S	Odor	Dust & Particulates	VOG	GHG	Cost
Barriers	Red	Red	Yellow	Green	Red	Red	\$
Biofilters	Yellow	Green	Green	Green	Green	Green	\$\$
Chimneys	Red	Red	Yellow	Green	Red	Red	\$
Diet Manipulation	Yellow	Yellow	Green	Green	Green	Green	\$
Electrostatic Precipitation	Red	Blank	Yellow	Green	Red	Red	\$\$
Landscaping	Yellow	Blank	Yellow	Green	Green	Green	\$
Oil Sprinkling	Red	Yellow	Yellow	Green	Green	Green	\$
Pit Ventilation	Red	Red	Red	Red	Red	Red	\$\$
Scrubbers	Green	Blank	Green	Green	Green	Green	\$\$\$
Siting	Red	Red	Red	Red	Red	Red	\$
Urine/Feces Segregation	Green	Green	Green	Green	Green	Green	\$\$-\$\$\$
UV Light	Blank	Red	Yellow	Green	Green	Green	\$\$

H₂S = Hydrogen Sulfide; VOG = Volatile Organic Compounds; GHG = Greenhouse Gases
 Red - low impact; Yellow - medium impact; Green - high impact; Blank - insufficient data

The table is laid out as a score card. Each technology within the tool is laid out on the vertical axis on the left. The pollutants are laid out on the horizontal axis at the top. A green color indicates a particular technology has a high impact on that particular pollutant. Likewise, yellow and red indicate medium and low impact respectively. As an example, if a person were concerned about a potential odor problem from animal housing, you would scan down the list under the "odor" column at the top. You would find that "Siting", "Scrubbers" and "Biofilters" have green bars, meaning they have high impact on odors. You could then investigate them further or check out some of the yellow bars that have a medium impact. Consequently red bars, would have low impact or would not be suitable for addressing that pollutant.

AMPAT Home Page >

Topics >

Animal Housing

- Barriers
- Biofilters
- Chimneys
- Diet Manipulation
- Electrostatic Precipitation
- Landscaping
- Oil Sprinkling
- Pit Ventilation
- Scrubber
- Siting
- Urine/Feces Segregation
- UV Light
- Manure Storage & Handling
- Land Application

Animal Housing -- Siting

Application: used for odors from buildings and manure storage

Pros

- Very effective when done prior to construction.
- Modeling can assist with decisions.
- Information can assist with communication with neighbors.

Cons

- Not helpful on existing facilities.
- Most models do not account for terrain impacts.
- Does not reduce emission, only odor impact.

Description

It may sound like an over-simplification, but properly siting an animal facility and associated manure storage is likely the most important odor control technology that can be implemented. This, however, must be done before the facility is constructed and it only truly addresses odor and no other emitants.

Care in siting a new facility in relation to neighbors, highways, parks and municipalities is important when avoiding the potential for odors. Separation distance, predominate wind direction, exposure angle, and terrain are all important considerations.

Wind Direction: Predominate wind direction varies by location and season and is often different than people might perceive to be the predominate direction. For instance, in Iowa

Figure 1. Wind rose for Des Moines, Iowa, July. (Courtesy of National Pork Board)

Company Name: USDA-ARS Date: 10/25/2002
 Modeler: Sara West Unit: m/s
 Display: Wind Speed
 Avg. Wind Speed: 9.2 mph
 Orientation: Direction (blowing from)
 Plot year-date-time: 1961, July 1 - July 31
 Midnight - 11 pm

See also

- download in pdf format
- Siting - AMPAT Talk from ISU ANR Program Services on Vimeo
- Photo Gallery
- Other Resources
- Slide Presentation

Example: Siting

- Web Page
- Fact Sheet: [AMPAT10.pdf](#)
- MP4 Presentation:
- Presentation notes:
 - [Siting - AMPAT.pdf](#)



Air Management Practices Assessment Tool

- AMPAT Home Page
- Topics
 - Animal Housing
 - Manure Storage & Handling
 - Acidification
 - Aeration
 - Anaerobic Digestion
 - Composting
 - Diet Manipulation
 - Impermeable Covers
 - Landscaping
 - Manure Additives
 - Permeable Covers
 - Siting
 - Solids Separation
 - Urine/Feces Segregation
 - Land Application
- Other Links
 - Literature Database
 - Photo Gallery
 - Definitions
 - National Pork Board

Manure Storage and Handling

	Ammonia	H ₂ S	Odor	Dust & Particulates	VOC	GHG	Cost
Acidification	Green	Red	Red	Yellow	Blank	Yellow	\$
Aeration	Yellow	Yellow	Green	Blank	Blank	Blank	\$\$
Anaerobic Digestion	Red	Red	Green	Red	Green	Green	\$\$\$-\$\$\$\$
Composting	Red	Yellow	Yellow	Red	Red	Yellow	\$-\$\$
Diet Manipulation	Yellow	Yellow	Yellow	Green	Blank	Blank	\$
Impermeable Covers	Green	Green	Green	Blank	Blank	Blank	\$\$
Landscaping	Yellow	Blank	Yellow	Yellow	Blank	Blank	\$
Manure Additives	Red	Red	Red	Blank	Red	Red	\$
Permeable Covers	Yellow	Green	Yellow	Blank	Blank	Blank	\$-\$\$
Siting	Red	Red	Green	Red	Red	Blank	\$
Solids Separation	Red	Red	Red	Blank	Blank	Blank	\$-\$\$\$
Urine/Feces Segregation	Green	Green	Green	Blank	Blank	Green	\$\$-\$\$\$

H₂S = Hydrogen Sulfide; VOC = Volatile Organic Compounds; GHG = Greenhouse Gases

■ red - low impact;
 ■ yellow - medium impact;
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 blank - insufficient data

The table is laid out as a score card. Each technology within the tool is laid out on the vertical axis on the left. The pollutants are laid out on the horizontal axis at the top. A green color indicates a particular technology has a high impact on that particular pollutant. Likewise, yellow and red indicate medium and low impact respectively.

AMPAT Home Page >

Topics ▾

- Animal Housing
- Manure Storage & Handling
- > Land Application
- Additives
- Application Methods

Other Links ▾

- Literature Database
- Photo Gallery
- Definitions
- National Pork Board
- Animal Agriculture & Air Quality

Land Application

	Ammonia	H ₂ S	Odor	Dust & Particulates	VOC	GHG	\$\$
Additives							\$
Application Methods							\$-\$

H₂S = Hydrogen Sulfide; VOC = Volatile Organic Compounds; GHG = Greenhouse Gases

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IOWA STATE UNIVERSITY Extension and Outreach
 Animal Agriculture and Air Quality, Angela Rieck-Hinz, 2104 Agronomy Hall, Iowa State University, Ames, IA 50011. Phone: (515) 294-9590, amrieck@iastate.edu. Jay Harmon, 200 Davidson Hall, Iowa State University, Ames, IA 50011. Phone: (515)-294-0554, harmon@iastate.edu. Dan Andersen, 3165 NSRIC, Iowa State University, Ames, IA 50011. Phone: (515)-294-4210, dasa@iastate.edu.
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AMPAT Summary

- <http://www.agronext.iastate.edu/ampat/>
- 21 technologies
 - Fact Sheets
 - Presentations
 - Comparisons

Tools Developed to Address Community Odor Concerns

Steven J. Hoff, Ph.D., P.E.
Professor

Department of Agricultural and Biosystems Engineering
Iowa State University

February 17, 2015

Air Dispersion Laboratory

Agricultural and Biosystems Engineering Department



Odor Modeling

Several Approaches

**OFFSET Version 2 (UMN) is widely used for predicting annoyance-free hours (source based).
Used in Iowa Master Matrix.**

OFT (UNL) is used for predicting annoyance-free hours (based on OFFSET, source based)

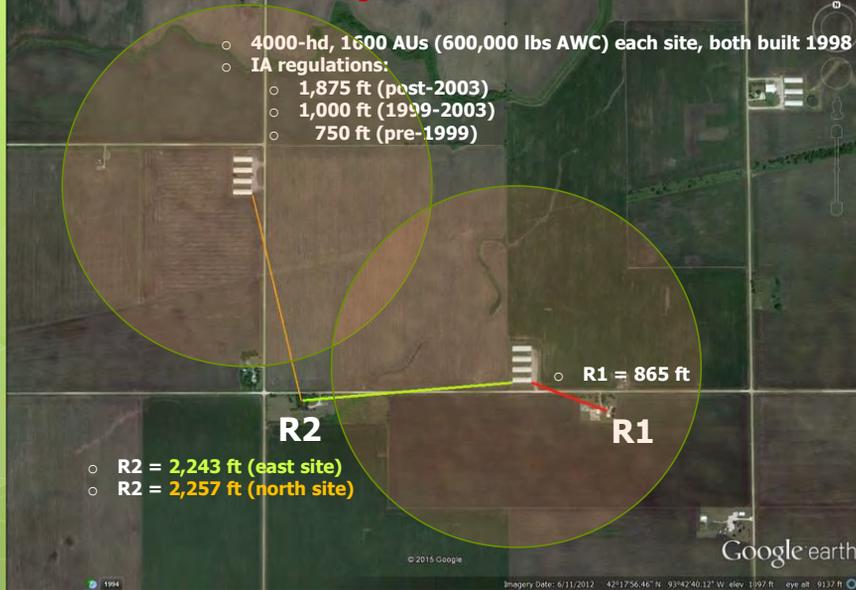
At ISU, we have developed CAM that focuses on swine odor impact to each neighbor, from (potentially) multiple swine sources (receptor based)

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Source vs Receptor Based Models



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Siting Decisions

Factors to Consider



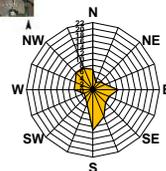
Historical Weather Patterns

% time in various directions and the relation to neighbors



Current Sources

What sources currently exist and how do these relate to the proposed source and existing neighbors?



Distances Are Not Equal in All Directions

In Iowa, predominant summer winds from S, SSE.

A facility to the south of a neighbor at a given distance has a greater odor impact as one to the north at the same distance. Must be considered.

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CAM

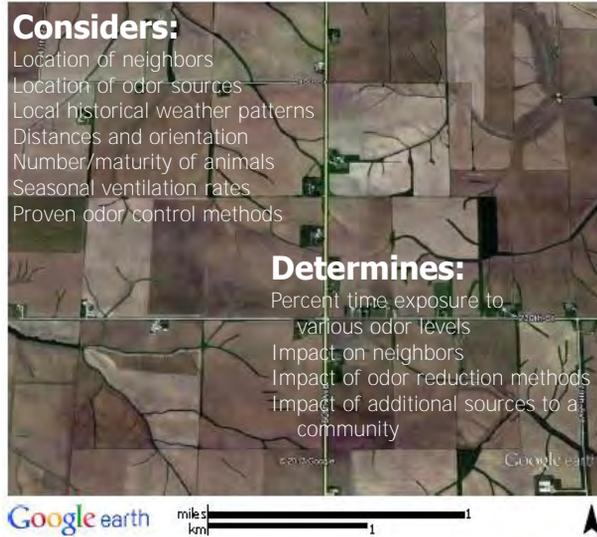
Developed, field tested, and voluntarily used in practice for ten years

Considers:

Location of neighbors
Location of odor sources
Local historical weather patterns
Distances and orientation
Number/maturity of animals
Seasonal ventilation rates
Proven odor control methods

Determines:

Percent time exposure to various odor levels
Impact on neighbors
Impact of odor reduction methods
Impact of additional sources to a community



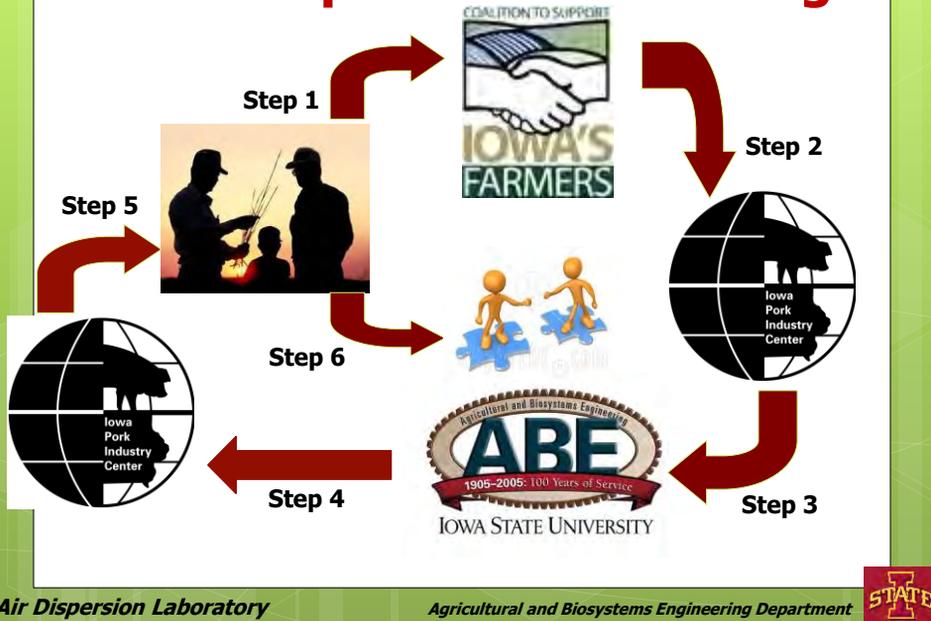
Decision Criteria Used

Siting requests with CAM evaluated as:

- Limit **proposed source load** for neighbors to 1% WEAK odors (58 hrs) and ½% IDENTIFIABLE odors (29 hrs).
 - Limit **proposed + existing source load** for neighbors to 2% WEAK odors (115 hrs) and 1% IDENTIFIABLE odors (58 hrs).
- Siting choice judged against all four criteria.

Hour amounts based on March-October

Partnership in Iowa for Siting



Odor Plots

Putting Odor Levels, Facility Size, and Localized Weather Patterns Together....

We have put together **odor plots** for several locations in Iowa by combining facility size, neighbor location, distance, and modeled odor concentrations

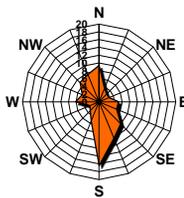
Here is what we get.....

Algona Odor Plot

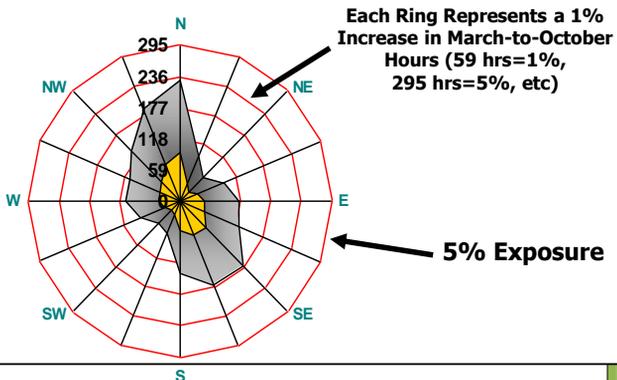
How to Read: If I am a neighbor 1,250 ft from a 2,400-hd DPSF, and I am due N of the site, I can expect to experience 4% weak and 1.5% identifiable odors.

Algona Odor Hours
1,250 ft Separation

Weak Odor
Identifiable Odor



2,400-hd DPSF

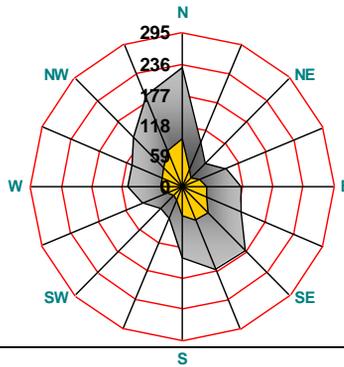


NOTE: 1,250 ft separation is the current Iowa regulation for a 2,400-hd confinement barn.

Algona Odor Plot: 1,250 ft Distance

Algona Odor Hours
1,250 ft Separation

Weak Odor
Identifiable Odor



2,400-hd DPSF

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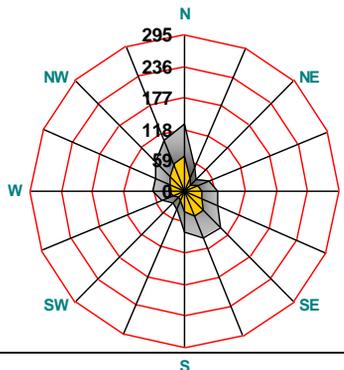
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Algona Odor Plot: 1,750 ft Distance

Algona Odor Hours
1,750 ft Separation

Weak Odor
Identifiable Odor



2,400-hd DPSF

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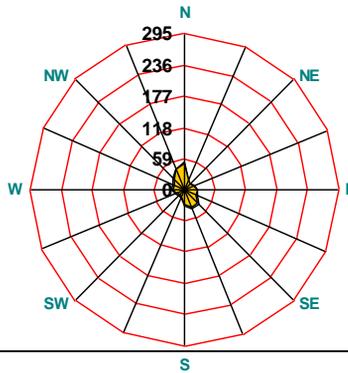


Algona Odor Plot: 2,250 ft Distance

Algona Odor Hours

2,250 ft Separation

Weak Odor
Identifiable Odor



2,400-hd DPSF

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CAM Example

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CAM Example Run

Proposed 1,800-hd Deep-Pit Finisher

Case Study

1800-hd deep-pit swine finisher,
Eastern Iowa

Single source, 19 receptors

Iowa Regulations Require 1,250 ft Separation
for this Facility (720 AUs)

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12/20/10
sec. 13 R/E

Odor Dispersion Modeling Worksheet

Starting Point: Corner of [redacted] St. and [redacted] Ave. Page 2 of 2

Receptor Parameters				Source Parameters							
Receptor Descriptor	East Distance (miles)	North Distance (miles)	Importance Factor	Source Descriptor	East Distance (miles)	North Distance (miles)	Animal Species	Manure Mgmt Type	Total Barn (sq ft)	Outdoor Storage (sq ft)	Total Head / Average Lbs Each
1220 4590 St	0.2	0.75	4	13M Paster	1.3	1.35	pigs	DP	27,000	0	3,000 / 150
A	(1.01)	0.85	2	1800 hd fin	(0.45)	0.13	pigs	DP		0	1200 / 150
B	(0.80)	0.98	2								
C	(0.45)	0.95	2								
D	(0.02)	1.05	3								
E	0.02	0.66	2								
F	(0.01)	0.57	2								
G	(0.01)	0.33	2								
H	0.03	0.20	2								
I	0.01	0.12	2								
J	0.14	0.02	2								
K	0.17	0.02	2								
L	0.20	0.04	2								
M	0.24	0.05	2								
N	0.01	0.10	2								
O	0.02	(0.15)	2								
P	(0.10)	(0.01)	2								
Q	(0.15)	0.01	2								
R	(0.98)	0.02	2								
S	(1.10)	0.03	2								

Importance Factor: 1 church, cemetery, frequent public gathering; 2 commercial, residential, consumer retail; 3 undisturbed neighbor; 4 rarely occupied; 5 animals on-site

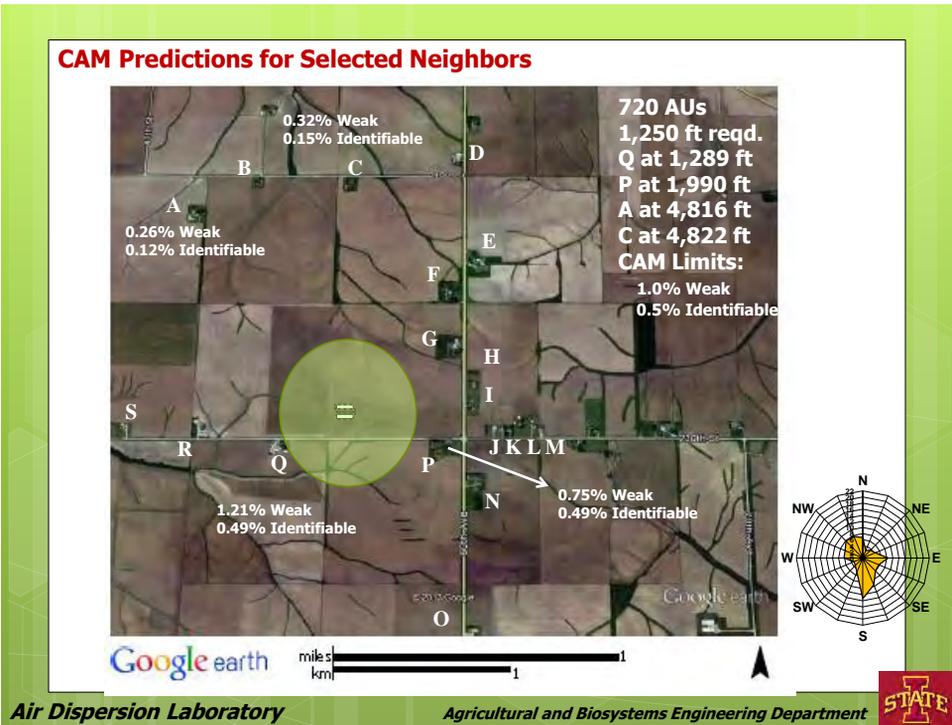
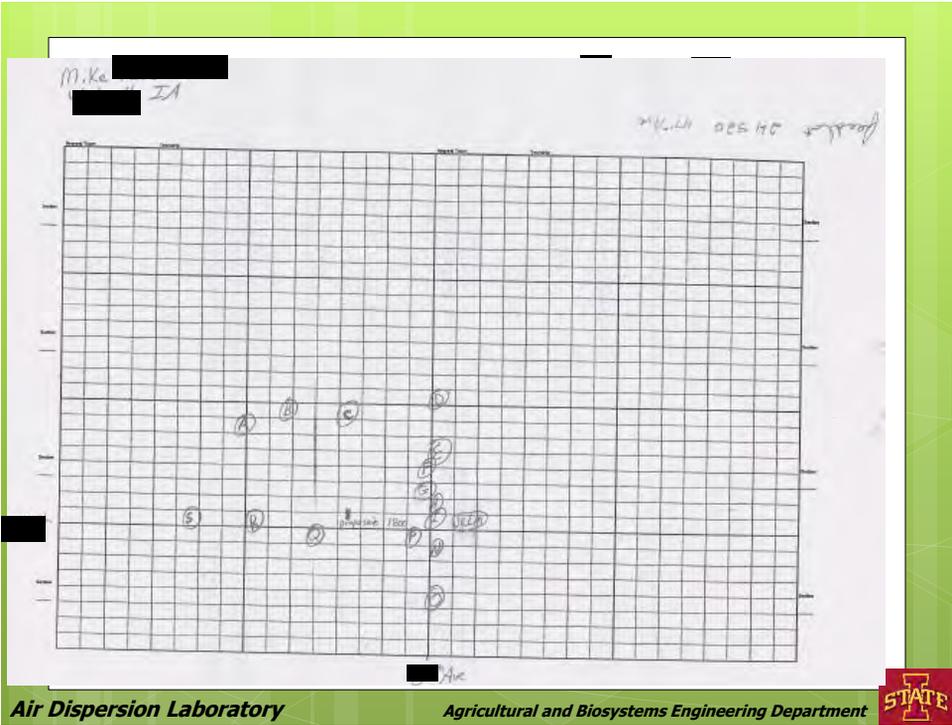
Manure Management Types: DP: deep pit; SP, FS: shallow pit, outside stored storage; SP, EB: shallow pit, earthen basin; SP, LA: shallow pit, lagoons

1800 hd fin finisher
857 245

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Using CAM in Practice

CAM has been used (voluntarily) in Iowa since 2005.

Producers cautioned that CAM is not a regulatory approved procedure for odor. But then...nothing is.

Producers have been receptive to the guidance CAM gives.

Producer Survey Summary

- **75% using CAM rated it useful to very useful.**
- **68% of producers who built after receiving CAM results were pleased with process.**
- **Of 32% who elected not to build, 50% cited CAM results as reason for their decision.**
 - **58% communicated CAM results to their neighbors. 32% of neighbors had a positive to very positive response.**

Published paper:
Applied Engineering in Agriculture, 26(5): 927-933

Citizen Survey Summary

- Three production-dense counties phone surveyed.
 - 28% of respondents live within 1 mile of a hog operation, 31% between 1-2 miles, and 41% >2 miles.
 - 18% of respondents raise livestock (71% of these hogs).
- 69% of respondents approved the use of modeling for locating acceptable sites.
- However...only 35% of those respondents would trust the results if their home was within 1 mile in-line of predominant winds.

Published paper:
Environmental Management, 50:315-328



My Observations

- Chasing odor plumes is impractical.
- Pre-planning *via* modeling is one option.
- Strict criteria used at planning stage cannot be used to evaluate existing sites/systems. For this reason, CAM will NEVER be available arbitrarily.
- Voluntary approach is working reasonably well in Iowa.



Odor Mitigation *via* Biofilters



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Impact-based Odor Control

To Be Effective.....

An odor control technology needs to result in at least a 70% reduction of source odor *when needed*

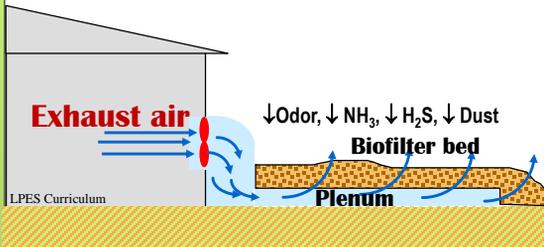
**This does not mean 70% reduction,
100% of the time**

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Biofiltration Research



Horizontal Bed



Vertical Bed



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Stable vs Unstable Atmospheres



Odors tend to "hang" near earth's surface

Troublesome odor events

Stable atmosphere (night, early evening, early morning)



Odors rise vertically near the source

Workable odor events

Unstable atmosphere (daytime high solar conditions)

Downwind distance

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Atmospheric Stability Monitoring with Bypass Control



On-site MET monitoring to determine atmospheric stability and potential neighbor impacts

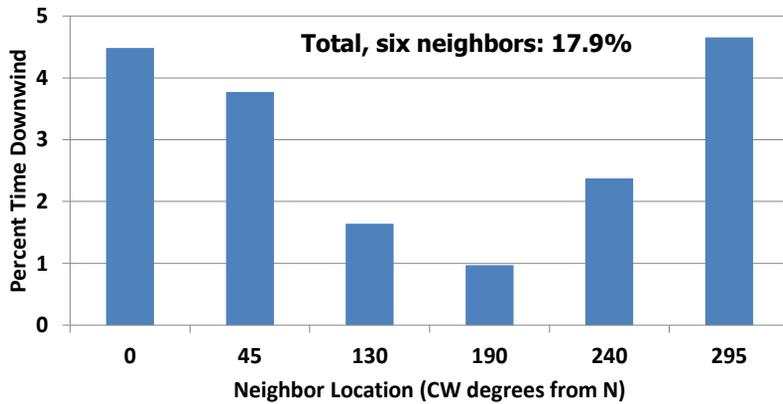
Bypass mode shown allowing direct odor emission without biofiltration



On-Farm Research Results

- Placed six "fictitious" neighbors around our on-farm biofilter research site
- Monitored atmospheric stability and mitigation needs over two summer seasons
- Determined % downwind for each neighbor, and, % downwind for each neighbor IF atmosphere stable requiring mitigation

Results: Percent Time Downwind

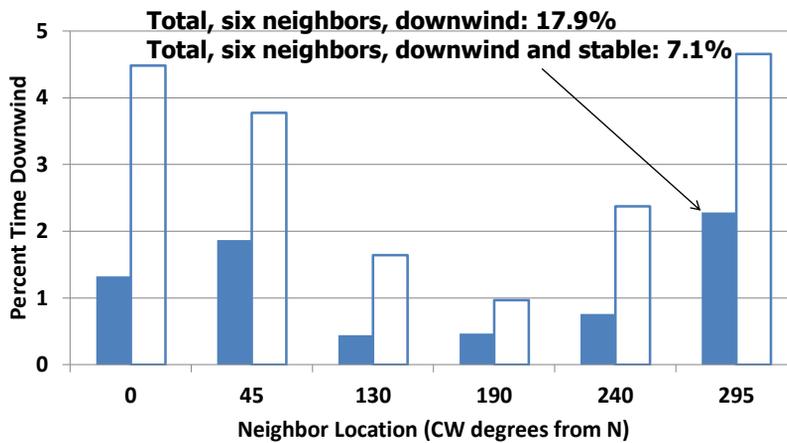


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Results: Percent Time Downwind vs. Downwind and Stable



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Summary Research Results

100% Odor Mitigation NOT Required:

1. IF mitigated based on downwind events only, mitigation time reduced to 17.9% of total time, and,
2. IF mitigated based on downwind AND stable atmospheres, mitigation time reduced to 7.1% of total time.

End Result: Significant odor mitigation can be realized with very little time of operation, IF, atmospheric data is collected to guide mitigation decisions.

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Funded by:



Overview of Siting

Air Management Practices Assessment Tool (AMPAT)

Project Team:

- Jay Harmon, Prof of Ag & Biosystems Engineering
- Steve Hoff, Professor of Ag & Biosystems Engineering
- Angie Rieck-Hinz, Extension Program Specialist

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Application

- Used to reduce odor impact from a livestock building and manure storage

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Basic Operation

- A facility that is properly located still will emit odors, but it is located in a way that minimizes the odor potential on neighbors, highways, parks and municipalities.

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Siting

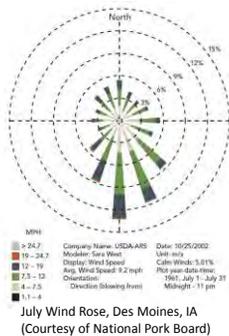
- Separation Distance – Not all directions are equal
- Wind Direction – Historical weather data
- Exposure Angle – angle when neighbors are directly downwind
- Terrain & air drainage



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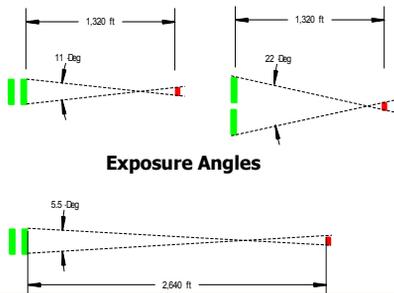
Siting

- Wind Rose
 - Based on historical averages
 - Percent time by direction
 - Not every direction is the same



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Siting – Effect of Distance and Size



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Siting – Wind & Distance

Iowa State - Hoff

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Models - OFFSET

- Odor From Feedlots – Setback Estimation Tool (OFFSET)
 - University of Minnesota
 - Spreadsheet based
 - Uses MN weather assumptions
 - Enter assumed emission rates, etc to get emission factor

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Models - OFFSET

Species	Animal Type	housing Type	Odor Emission Number (OEN)
Cattle	Dairy	Dry-concrete lot	4
		Free-stall, scrape	4
		Free-stall, deep-pits	6
Swine	Gestation	Open concrete	2
		Deep-pit, natural or mechanical	50
		Pull-plug, natural or mechanical	30
Lambs	Nursery	Deep-pit, natural or mechanical	14
		Pull-plug, natural or mechanical	42
Poultry	Broiler	Deep-pit, natural or mechanical	32
		Pull-plug, natural or mechanical	20
		Deep-liner, deep-bedded, scrape	4
		Cargill open front, scrape	11
Turkey	Layer	Open concrete lot, scrape	1
		Layer	2

Odor emission numbers → Odor Emission Factor

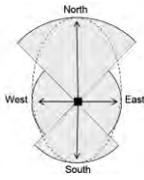
Distance to be x% annoyance free

Jacobson, 2011

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Models - OFT

- Odor Footprint Tool (OFT)
 - University of Nebraska/South Dakota State
 - Similar to OFFSET but has a directional setback distance for each quadrant



Stowell et al

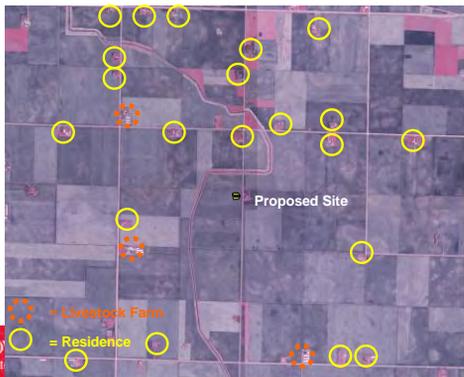
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Models - CAM

- Community Assessment Model (CAM)
 - Iowa State University
 - Receptor Based
 - Accounts for multiple odor sources in an area

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Models - CAM



IO
Ext

Models - CAM

- For each receptor (resident) provides:
 - Estimated hours of potential odor from new facility
 - Estimated hours of total potential odor
 - Hours of “detectible” and “recognizable” odors
- Assistance provided by ISU and the Coalition to Support Iowa’s Farmers.

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Siting - Pros

- Very effective when done prior to construction.
- Modeling can assist with decisions.
- Information can assist with communication with neighbors.

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Siting - Cons

- Not helpful on existing facilities.
- Most models do not account for terrain impacts.
- Does not reduce emission, only odor impact.

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Effectiveness

Component	Reduction	Notes
NH3	0%	
H2S	0%	
Odor	100%	Impact on Neighbor
Particulate Matter	0%	PM10 (\leq 10 microns)
Volatile Organic Compounds (VOC)	0%	
Cost	\$	Modeling & New Site

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For Further Information:

- eXtension
- National Pork Board
- University of Minnesota
- South Dakota State/Univ of Nebraska
- If you are an educator and wish to have copies of powerpoint files, contact Jay Harmon (jharmon@iastate.edu).

IOWA STATE UNIVERSITY
Extension and Outreach

Agenda

Environmental Protection Commission

Tuesday, February 17, 2015
DNR Air Quality Suite 1
7900 Hickman Road
Windsor Heights, Iowa

EPC Business Meeting

10:00 AM – EPC Business Meeting begins

11:30 AM – Notice of Intended Action – Chapter 50, 52, & 53

1:00 PM – ISU Odor Educational Presentation

Public Participation¹ – Requests to speak during the business meeting Public Participation must be submitted to Jerah Sheets at Jerah.Sheets@dnr.iowa.gov, 502 East 9th Des Moines, IA 50319, 515-313-8909, or in-person by the start of the business meeting. Please indicate who you will be representing (yourself, an association, etc.), the agenda item of interest, and your stance of For, Opposed, or Neutral.

If you are unable to attend the business meeting, comments may be submitted via mail and email for the public record. The Commission encourages data, reports, photos, and additional information provided by noon the day before the meeting to allow ample time for review and consideration.

Agenda topics

- | | | |
|----|--|---------------------------------|
| 1 | Approval of Agenda | |
| 2 | Approval of Minutes | |
| 3 | Monthly Reports | Bill Ehm
(Information) |
| | Public Participation | |
| 4 | Director's Remarks | Chuck Gipp
(Information) |
| 5 | Notice of Intended Action – Chapters 50 “Scope of Division,” 52 “Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water,” and 53 “Protected Water Sources” | Chad Fields
(Decision) |
| 6 | Adopted and Filed: Chapter 81: “Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems” | Diane Moles
(Decision) |
| 7 | Final Rule - Chapter 64 --- Wastewater Construction and Operation Permits for Well Construction and Well Service and Well Service Discharges | Wendy Hieb
(Decision) |
| 8 | Final Rules: Chapters 22, 23, 25, 31, and 33 – Rescission Rulemaking | Christine Paulson
(Decision) |
| 9 | Contract Amendment – University of Iowa, Floodplain Mapping | Chris Ensminger
(Decision) |
| 10 | Ground Water Status Report | Bob Libra
(Decision) |
| 11 | Solid Waste Alternatives Program – Contract Recommendation | Tom Anderson
(Decision) |
| 12 | Winneshiek County Recycling Department Household Hazardous Waste (HHW) Satellite Year Round Service | Tom Anderson
(Decision) |

- 13 General Discussion
 - EPC Annual Report Distribution
 - Agenda Structure
- 14 Items for Next Month's Meeting
 - March 17, 2015 – EPC Business Meeting, Windsor Heights
 - April 14, 2015 – EPC Business Meeting, Windsor Heights

For details on the EPC meeting schedule, visit
<http://www.iowadnr.gov/InsideDNR/BoardsCommissions.aspx>

¹ Comments during the public participation period regarding proposed rules or notices of intended action are not included in the official comments for that rule package unless they are submitted as required in the Notice of Intended Action.

Any person attending the public meeting and has special requirements such as those related to mobility or hearing impairments should contact the DNR or ADA Coordinator at 515-725-8200, Relay Iowa TTY Service 800-735-7942, or Webmaster@dnr.iowa.gov, and advise of specific needs.

**DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
ATTORNEY GENERAL REFERRALS
February, 2015**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
Hoffman, Matt Hinton (3)	Animal Feeding Operation	Failure to Submit MMP and Fees	Referred to Attorney General	Referred Petition Filed	4/15/14 12/03/14
Iowa CCI Action Fund	Animal Feeding Operation	EPC Defendant	Defense	Petition Filed State's Motion to Dismiss Resistance to Motion Amended Petition Filed Hearing Order Granting State's Motion To Dismiss	8/20/14 8/29/14 9/08/14 10/07/14 10/17/14 12/12/14
Kossuth County (2)	Animal Feeding Operation	DNR Defendant	Defense	Petition for Judicial Review State's Answer P&J Pork Motion to Intervene Order Granting Motion to Intervene	9/18/14 10/08/14 11/07/14 11/20/14
North Central Iowa Regional SWA Fort Dodge (2)	Solid Waste	Operating Permit Violations	Referred to Attorney General	Referred	9/17/13
North Iowa Area Solid Waste Agency Sheldon (3)	Solid Waste	Unapproved Leachate Collection System	Referred to Attorney General	Referred Petition Filed Answer Third Party Petition Against Elliot Waddell and Five States Engineering, PLC State's Resistance to Demand for Jury Trial Hearing Regarding Jury Trial Demand Ruling Denying Jury Demand Motion to Clarify Ruling Nunc Pro Tunc Order Jury Demand Allowed for 3 rd Party Defendant State's Motion to Strike or Sever 3 rd Party Petition Resistance to Motion to Strike Application for Default Judgment Order Granting Default Judgment Against 3 rd Party Defendant Trial Date	1/15/13 9/26/13 10/11/13 10/11/13 10/23/13 11/25/13 1/17/14 1/23/14 1/28/14 2/11/14 2/24/14 3/12/14 3/13/14 3/31/15
Peeters Development Co., Inc.; Mt. Joy Mobile Home Park Davenport (6)	Wastewater	Monitoring/Reporting; Compliance Schedule; Discharge Limits; Operation Violations; Certified Operator Discipline	Referred to Attorney General	Referred	3/18/14
Pet Memories, Inc. Warren Co. (5)	Solid Waste	Judicial Review	Defense	Petition Filed Answer Hearing Date	2/05/14 3/05/14 1/21/15

**DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
ATTORNEY GENERAL REFERRALS
February, 2015**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
Scallon, Jim Austinville (2)	Solid Waste	Illegal Disposal	Referred to Attorney General	Referred	5/20/14

**Iowa Department of Natural Resources
Environmental Services
Quarterly Report of Wastewater By-passes**

During the period October 1, 2014 through December 31, 2014, 34 reports of a wastewater by-pass were received. A general summary and count by field office is presented below. This does not include by-passes resulting from precipitation events or by-passes resulting in basement backups.

Month	Total	Avg. Length (days)	Avg. Volume (MGD)	Sampling Required	Fish Kill
1 ST Quarter '14	52(53)	0.379	0.007	4	0(0)
2 ND Quarter '14	78(97)	0.188	0.011	11	0(0)
3 RD Quarter '14	58(46)	0.184	0.008	8	0(0)
4 TH Quarter '14	34(46)	0.460	0.047	4	0(0)

(numbers in parentheses are for same period last year)

Total Number of Incidents per Field Office This Quarter:

Field Office	1	2	3	4	5	6
Reports	8	1	10	2	4	9

**DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
CONTESTED CASES
February, 2015**

DATE RECEIVED	NAME OF CASE	F.O.	ACTION APPEALED	PROGRAM	ASSIGNED TO	STATUS
10/29/09	Harlan Rudd; Karen Rudd; dba Rudd Brothers Tires	6	Order/Penalty	UT	Brees	Informal negotiation. CADR was submitted, partially rejected with options. Settlement letter sent 2/24/10.
3/11/10	Bondurant, City of	5	Order/Penalty	WW	Hansen	7/2013-On hold pending further investigation.
2/28/11	Manson, City of	3	Order/Penalty	WS	Hansen	4/1/11 – Settlement conference held with City. 6/22/11- Settlement offer received from City attorney. 6/28/11- More information requested from City attorney concerning the settlement proposal. 11/29/11- Settlement meeting with City regarding new well project. 12/2011 – City proceeding with project. 6/2012- Contractor worked on new well to remove debris in well. Test pump to be installed to do test of well capacity. 07/2012- City to abandon new well and select new site for well to increase PWS capacity. 10/2012- Water plant work to be done week of 12/10/12. 5/2013- New well project & appeal on hold, pending USDA funding decision. 6/2/13 – USDA funding decision received. 6/26/13 – New bid date for well project. . 7/2013- Tentative schedule for new well received from City’s engineer. 8/13 – Drilling on test well begun by contractor. 9/13 – Test well not productive, new well site approved by Dept. New test well to be drilled. 10/13- Test well drilled but not successful. Test well abandoned. City Council to decide on next step. 1/24/14 – City’s engineer sent revised construction schedule for another test well and production well. 5/23/14- Test well drilled but not successful. City Council to determine next step. 6/20/14- Letter sent to City requesting plan of action and schedule by 8/30/14 for returning to compliance with order. 8/29/14 – New schedule received from City, to be incorporated into proposed consent amendment. . 01/26/14- Proposed consent amendment sent to City for review.
8-27-12	Ag Processing, Inc.; Sergeant Bluff	4	Permit Conditions	AQ	Preziosi	Met with appellant 1/31/14. Met with appellant 3/12/14. Negotiations continuing. Appellant to submit further information in April. Settled in concept. Last communication with appellant on 5/22/14. Communication from appellant 7/22/14. Internal meeting 9/5/14. Letter sent to appellant 12/14 proposing terms of settlement.

**DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION COMMISSION
CONTESTED CASES**

February, 2015

DATE RECEIVED	NAME OF CASE	F.O.	ACTION APPEALED	PROGRAM	ASSIGNED TO	STATUS
11-21-12	Ag Processing Inc.	6	Permit Conditions	AQ	Preziosi	Continuing negotiations. Last communication with appellant on 5/20/14. Communication from appellant 7/22/14. Internal meeting 9/5/14. Letter sent to appellant 12/14 proposing terms of settlement.
3-04-13	Anderson Excavating Co., Inc.	4	Order/Penalty	SW	Tack	Landfill closure underway. Settlement will occur after closure. Inspection on 8/20/14. Closure to be completed this fall.
6-10-13	Mike Jahnke	1	Dam Application	FP	Schoenebaum	Hearing held 7/30/14. ALJ upheld the permit issued by the Department.
10-28-13	Regional Environmental Improvement Commission/Iowa Co. SLF	6	Variance	WW	Tack	REIC meeting with WES on 6/17/14. Facility plan submitted 8/29/14. Antidegradation analysis needed next.
1-02-14	P & J Pork, LLC		Construction Permit Denial	AFO	Clark	6/10/14 – Proposed decision affirming DNR permit denial. 6/18/14 – P & J Pork appeals proposed decision. 8/19/14 – EPC reverses proposed decision. 9/18/14 – Intervenor, Kossuth County, files Petition for Judicial Review in Kossuth County.
1/16/14	Council Bluffs Water Works	4	Permit Conditions	WW	Tack	Hearing set for March 5, 2015.
1/21/14	AG Processing, Inc.		Permit Conditions	AQ	Preziosi	Negotiations continuing. Last communication with appellant on 5/20/14. Communication from appellant 7/22/14. Internal meeting 9/5/14.
4/17/14	REIC/Iowa Co. Sanitary Landfill	6	Permit Conditions	WW	Tack	REIC meeting with WES on 6/17/14. Facility plan submitted 8/29/14. Antidegradation analysis needed next.
8/29/14	Altoona, City of	5	Permit Conditions	WW	Schoenebaum	Negotiating before filing.
9/08/14	Craig Ver Steegh	5	Permit Conditions	WW	Tack	Response from Appellant due December 1, 2014.
10/01/14	Amsted Rail Company, Inc. (Griffin Wheel Co.)		Permit Conditions	SW	Tack	Negotiating before filing.
11/13/14	Adam Timmerman	3	Order/Penalty	AFO	Book	Negotiating before filing.
1/21/15	Sidney, City of	4	Permit Conditions	WS	Hansen	New case.

DATE: February, 2015

TO: EPC

FROM: Ed Tormey

RE: Enforcement Report Update

The following new enforcement actions were taken during this reporting period:

Name, Location and Field Office Number	Program	Alleged Violation	Action	Date
S.L. Baumeier Company, LLC Marshall Co. (5)	Air Quality Solid Waste	Open Burning; Illegal Disposal	Consent Order \$5,000	1/06/15
Jeff Pottebaum Sioux Co. (3)	Animal Feeding Operation	Prohibited Discharge – Open Feedlot; WQ Violations – General Criteria	Consent Order \$4,000	1/07/15
Jerome W. Vittetoe Pork, Ltd. Washington Co. (6)	Animal Feeding Operation	Uncertified Applicator	Consent Order \$5,000	1/07/15



Iowa Department of Natural Resources
Environmental Services Division
Quarterly Report of Manure Releases

During the period October 1, 2014, through December 31, 2014, 23 reports of manure releases were forwarded to the central office. A general summary and count by field office is presented below.

		Total Incidents		Surface Water Impacts		Feedlot		Confinement		Land Application		Transport		Hog		Cattle		Poultry		Other	
Month	Year	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago
Jan	2014	2	1	1	0	1	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0
Feb	2014	1	12	0	0	0	0	0	12	0	0	1	0	0	12	0	0	1	0	0	0
Mar	2014	2	14	1	0	0	0	1	14	0	0	1	0	2	14	0	0	0	0	0	0
Apr	2014	4	2	0	1	0	0	3	2	1	0	0	0	4	0	0	2	0	0	0	0
May	2014	2	6	1	2	0	0	1	3	0	1	1	2	1	5	1	1	0	0	0	0
Jun	2014	3	3	1	1	2	0	0	0	0	1	1	2	1	2	2	1	0	0	0	0
Jul	2014	2	2	0	0	0	0	2	0	0	0	0	2	2	1	0	1	0	0	0	0
Aug	2014	3	0	3	0	1	0	1	0	1	0	0	0	1	0	2	0	0	0	0	0
Sep	2014	6	5	3	1	0	0	5	4	0	1	1	0	1	3	4	2	1	0	0	0
Oct	2014	14	10	3	2	3	0	5	5	1	0	5	5	9	7	5	3	0	0	0	0
Nov	2014	6	12	3	2	0	0	3	3	1	1	2	8	5	11	0	1	1	0	0	0
Dec	2014	3	9	0	1	0	0	1	2	0	0	2	7	2	4	0	3	0	2	1	0
Total		48	76	16	10	7	0	23	46	4	4	14	26	29	60	15	14	3	2	1	0

Total Number of Incidents per Field Office for the Selected Period	Field Office 1		Field Office 2		Field Office 3		Field Office 4		Field Office 5		Field Office 6	
	Current	Previous										
Total	3	4	4	6	7	10	4	4	2	0	3	6



**Iowa Department of Natural Resources
Environmental Services Division**

Quarterly Report of Hazardous Conditions

During the period October 1, 2014, through December 31, 2014, 179 reports of hazardous conditions were forwarded to the central office. A general summary and count by field office is presented below. This does not include releases from underground storage tanks, which are reported separately.

		Substance								Mode											
		Total Incidents		Agrichemical		Petroleum Products		Other Chemicals		Transport		Fixed Facility		Pipeline		Railroad		Fire		Other*	
Month	Year	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago	Cur	Yr Ago
Jan	2014	68	57	7	4	40	32	21	21	11	9	48	43	0	1	2	1	2	1	5	2
Feb	2014	69	50	5	1	47	32	17	17	19	15	36	32	1	0	4	1	4	1	5	1
Mar	2014	73	53	1	1	48	45	24	7	19	11	46	35	2	2	4	1	0	0	2	4
Apr	2014	75	91	11	25	50	49	14	17	20	27	44	53	2	1	4	4	1	0	5	6
May	2014	66	115	15	26	33	75	18	14	18	30	39	72	2	1	1	3	0	2	6	7
Jun	2014	89	70	14	8	60	47	15	15	27	12	54	54	1	0	3	2	1	1	3	1
Jul	2014	103	54	6	7	74	32	23	15	16	14	78	35	0	2	3	3	1	0	6	0
Aug	2014	45	60	2	4	32	36	11	20	11	11	28	36	1	4	1	2	0	1	5	6
Sep	2014	60	62	6	7	36	41	18	14	17	9	32	47	2	3	3	1	2	1	6	1
Oct	2014	65	57	3	7	40	38	22	12	18	14	37	38	0	2	1	1	2	0	7	2
Nov	2014	54	60	5	10	35	30	14	20	24	16	24	42	2	1	1	1	0	0	3	0
Dec	2014	60	49	1	6	48	30	11	13	15	17	37	29	0	1	1	2	0	0	7	0
Total		827	778	76	106	543	487	208	185	215	185	503	516	13	18	28	22	13	7	60	30

*Other includes dumping, theft, vandalism and unknown

Total Number of Incidents per Field Office This Selected Period	Field Office 1		Field Office 2		Field Office 3		Field Office 4		Field Office 5		Field Office 6	
	Current	Year Ago										
Total	23	28	29	24	10	20	27	27	46	33	44	34

IOWA DEPARTMENT OF NATURAL RESOURCES
LEGAL SERVICES BUREAU

DATE: February 1, 2015
TO: Environmental Protection Commission
FROM: Ed Tormey
SUBJECT: Summary of Administrative Penalties

The following administrative penalties are due:

NAME/LOCATION	PROGRAM	AMOUNT	DUE DATE
Robert and Sally Shelley (Guthrie Center)	SW	1,000	3-04-91
Daryl & Karen Hollingsworth d/b/a Medora Store(Indianola)	UT	3,825	3-15-96
Greg Morton; Brenda Hornyak (Decatur Co.)	SW/AQ/WW	3,000	11-04-98
James Harter (Fairfield)	WW	1,336	8-01-01
* Floyd Kroeze (Butler Co.)	AFO	1,500	2-20-01
Midway Oil Co.; David Requet (Davenport)	UT	5,355	9-20-02
Midway Oil Co.; David Requet; John Bliss	UT	44,900	2-28-03
Green Valley Mobile Home Park (Mt. Pleasant)	WW	5,000	4-23-03
Midway Oil Company (West Branch)	UT	7,300	5-03-03
Midway Oil Company (Davenport)	UT	5,790	5-03-03
Albert Miller (Kalona)	AQ/SW	9,750	9-26-03
Mike Messerschmidt (Martinsburg)	AQ/SW	500	4-13-04
Interchange Service Co., Inc., et.al. (Onawa)	WW	6,000	5-07-04
# Dunphy Poultry (Union Co.)	AFO	1,500	6-27-04
# Cash Brewer (Cherokee Co.)	AFO/SW	10,000	8-25-04
# Doorenbos Poultry; Scott Doorenbos (Sioux Co.)	AFO	1,500	10-09-04
# Doug Sweeney (O'Brien Co.)	AFO	375	12-21-04
Harold Linnaberry (Clinton Co.)	SW	1,000	5-18-05
# Joel McNeill (Kossuth Co.)	AFO	2,460	1 21-06
Affordable Asbestos Removal, Inc. (Monticello)	AQ	7,000	4-28-06
# Troy VanBeek (Lyon Co.)	AFO	3,500	10-16-06
Larry Bergen (Worth Co.)	AQ/SW	257	11-01-06
# Joshua Van Der Weide (Lyon Co.)	AFO	3,500	2-25-08
Jon Knabel (Clinton Co.)	AQ/SW	2,000	12-16-08
# Rick Renken (LeMars)	AFO	996	7-03-09
# Robert Fangmann (Dubuque Co.)	AFO	1,000	7-15-09
# Brian Lill (Sioux Co.)	AFO	2,865	7-18-09
Denny Geer (New Market)	SW	9,476	10-31-09
Shrey Petroleum; Palean Oil; Profuel Three (Keokuk)	UT	10,000	3-19-10
Melvin Wellik; Wellik-DeWitt Implement (Britt)	AQ/SW	2,900	4-08-10
Alchemist USA, LLC; Ravinder Singh (Malcom)	UT	8,260	5-03-10
# LJ Unlimited, LLC (Franklin Co.)	AFO/AQ/SW	3,500	5-27-10
Bret Cassens; J & J Pit Stop (Columbus Junction)	UT	8,700	6-20-10
# Christopher P. Hardt (Kossuth Co.)	AFO	2,000	7-07-10
AKD Investments, LLC; H.M. Mart, Inc. (Blue Grass)	UT	6,900	8-06-10
Eastern Hills Baptist Church (Council Bluffs)	WS	1,250	11-29-10

#Animal Feeding Operation

BOLD Entries Have Been Referred to DRF

# Joe McNeill (Kossuth Co.)	AFO	2,460	12-23-10
Gonzalez & Sons Express, Inc. (DeSoto)	WW	8,000	4-20-11
David C. Kuhlemeier (Cerro Gordo Co.)	AQ/SW	2,000	6-30-11
Steve Friesth (Webster Co.)	AQ/SW	7,857	11-26-11
Josh Oetken (Worth Co.)	AQ/SW	8,320	3-11-12
Jeffrey G. Gerritson (O'Brien Co.)	SW	2,000	4-16-12
Bhupinder Gangahar/Saroj Gangahar/International Business	UT	7,935	4-20-12
Finney Industrial Painting, Inc. (Fairfield)	AQ/WW	2,025	4-23-12
Terry Philips; TK Enterprises (Washington Co.)	AQ/WW	3,000	5-30-12
# Boerderij De Vedhoek, LLC (Butler Co.)	AFO	8,500	11-16-12
Noah Coppess (Cedar Co.)	AQ/SW	7,500	2-23-13
Shane Rechkemmer (Fayette Co.)	SW	1,000	3-01-13
B Petro Corporation (Cedar Rapids)	UT	7,728	5-13-13
Ken Odom (Iowa Co.)	AQ/SW	5,000	4-26-13
Massey Properties, LLC; The Wharf (Dubuque)	WS	10,000	10-05-13
Robert Downing (Mahaska Co.)	AQ/SW	10,000	11-20-13
Shriners Hospital for Children, Inc. (Des Moines)	UT	8,890	12-03-13
Larry Eisenhower (Woodbury Co.)	AQ/SW	4,675	3-01-14
Randy Wise; Wise Construction (Buena Vista Co.)	AQ/SW	3,000	4-10-14
Advanced Electroforming, Inc. (Cedar Co.)	AQ	1,500	4-03-14
Audra Early; Mid-States Mfg. & Engr. (Van Buren Co.)	AQ	2,500	4-03-14
Western Iowa Telephone Assoc. (Lawton)	WW	4,000	5-24-14
Wendall Abkes (Parkersburg)	SW	3,000	7-30-14
# Treven Howard; Northwest Manure Mgmt. (Ocheyedan)	AFO	6,000	10-09-14
Donna J. Jensen (Ringsted)	AQ/SW	3,000	10-17-14
# Charles and Patricia Henningsen (Ruthven)	AFO	2,000	10-19-14
Dennis Habben (Sioux Co.)	SW	3,000	11-01-14
Leda Properties, LTD (Dubuque)	WW	5,000	12-12-14
Annie's LLC; Togie Pub (Lime Springs)	WS	3,500	12-22-14
Joel Thys; Thys Chevrolet, Inc. (Benton Co.)	AQ/SW	10,000	1-04-15
West Central Cooperative (Halbur)	WW	4,000	1-04-15
Brian Peterson (Woodbury Co.)	AFO	10,000	1-05-15
Mahle Engine Components USA, Inc. (Atlantic)	WW	10,000	2-06-15
S.L. Baumeier Company, LLC (Marshall Co.)	AQ/SW	5,000	2-06-15
	TOTAL	368,585	

The following penalties have been assessed but are not due at this time:

# Benjamin J. Waigand (Union Co.)	AFO	2,500	4-15-15
	TOTAL	2,500	

The following penalties have been placed on payment plans:

* Reginald Parcel (Henry Co.)	AQ/SW	110	4-23-05
* Country Stores of Carroll, Ltd. (Carroll)	UT	1,408	6-06-05
* Douglas Bloomquist (Webster Co.)	AQ/SW	3,500	12-01-07
* Jack Knudson (Irwin)	UT	10,000	1-15-08
# Jerry Passehl (Latimer)	SW/WW/HC	2,695	7-01-09
Jerry Wernimont (Carroll)	AQ/SW	1,500	4-19-10
# Ernest Greiner (Keokuk Co.)	AFO	500	10-10-10

#Animal Feeding Operation

BOLD Entries Have Been Referred to DRF

Jim Scallon (Butler Co.)	SW	700	4-15-13
R.H. Hummer Jr., Inc.; 2161 Highway 6 Trail (Iowa Co.)	AQ/SW	3,643	9-15-13
Patrick Baker; Stockton Auto (Davenport)	AQ/SW	166	12-15-14
Air Advantage, Inc. (Mt. Pleasant)	WW	1,500	4-01-15
Ellsworth Excavating Co. (Muscatine Co.)	AQ/SW	450	1-01-15
# Steve Grettenberg; Dragster LLC	AFO	1,750	11-20-14
Millard Elston III; The Earthman (Jefferson Co.)	AQ/SW	1,815	2-15-13
Simon Simonson (Kossuth Co.)	SW	4,100	11-30-14
ADA Enterprises, Inc. (Worth Co.)	WW	5,000	8-15-14
Niehouse Cleaners & Draperies, Inc. (Marshalltown)	AQ	2,500	9-15-14
# David Dahlgren (Clarion)	AFO	2,250	12-15-14
	TOTAL	43,587	

The following administrative penalties have been appealed:

Harlan Rudd; Karen Rudd; Rudd Bros. Tires (Drakesville)	UT	10,000	
Bondurant, City of	WW	10,000	
Helen and Virgil Homer; Grandmas Snack Shop; (Aredale)	WS	8,461	
Manson, City of	WS	10,000	
Anderson Excavating Company, Inc. (Pottawattamie Co.)	SW	10,000	
# Adam Timmerman; AT Livestock Ent. South (Cherokee Co.)	AFO	4,250	
	TOTAL	52,711	

The following administrative penalties have been collected:

# Jeff Pottebaum (Sioux Co.)	AFO	4,000	
# Jerome W. Vittetoe Pork, Ltd. (Washington Co.)	AFO	5,000	
Josh Oetken (Worth Co.)	AQ/SW	25	
Josh Oetken (Worth Co.)	AQ/SW	25	
Albert Miller (Kalona)	AQ/SW	5	
Albert Miller (Kalona)	AQ/SW	5	
Finney Industrial Painting, Inc. (Fairfield)	AQ/WW	2,025	
Simon Simonson (Kossuth Co.)	SW	100	
# Galen Wagner (Mitchell Co.)	AFO/SW	6,500	
# Lee Grage (Plymouth Co.)	AFO	3,000	
	TOTAL	20,685	

#Animal Feeding Operation

BOLD Entries Have Been Referred to DRF

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

5

Decision

TOPIC

Notice of Intended Action – Chapters 50 “Scope of Division,” 52 “Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water,” and 53 “Protected Water Sources”

The Commission is asked to approve the Notice of Intended Action to initiate rulemaking to amend Chapters 50 “Scope of Division,” 52 “Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water,” and 53 “Protected Water Sources.” The proposed amendments will revise the rules governing the use of the Cambrian-Ordovician Aquifer (commonly called the Jordan Aquifer) in Iowa. The proposed changes are a result of the recommendations made to the Commission by the EO80 Stakeholder Group that was tasked with evaluating the current rules to better manage the usage of the Jordan Aquifer. At its November 19, 2014, meeting, the Commission directed the EO80 Stakeholder Group and the Department to develop rules for those recommendations that required rule changes.

Reason for Rulemaking:

The Jordan Aquifer extends underneath much of Iowa and is a significant well water source in the state. Protection from overuse of the resource (also known as dewatering the aquifer) is needed in some parts of the state. The EO80 Stakeholder Group developed a tiered classification system for existing and future Jordan wells that are required to be permitted under the state’s water allocation rules, so that the resource will have a sustainable use into the future. A water allocation permit must be obtained by anyone withdrawing at least 25,000 gallons in a single day during the year. A permit holder withdrawing more water than the aquifer can sustain at that well location will be required to develop a water use reduction plan and implement measures so that the aquifer can recover to a sustainable level. Other proposed rule amendments require activities that result in closer oversight of the aquifer.

Stakeholder Involvement

The EO80 Stakeholder Group met five times in 2014, and its recommendations were presented to the Commission on June 17, 2014, and on November 19, 2014. A sixth meeting was held on December 30, 2014, with Department staff to finalize the proposed amendments. Members of this committee and the representation the members provided are as follows:

<i>Name</i>	<i>Organization</i>	<i>Representing</i>
John Crotty	Iowa Environmental Council	Environmental advocacy group
Shawn Kerrick	Koch Nitrogen	Industrial user from business located in affected area
Gale McIntosh	Northway Pump	Water well contractor
Jill Soenen	Iowa Association of Municipal Utilities	Municipal utility association
Todd Steigerwaldt	City of Marion (Water Works)	Municipal user in affected area

Becky Svatos	Stanley Consultants, Iowa ABI	Professional consulting engineering firm, Business association
Nancy Couser	Environmental Protection Commission	State agency

Summary of Proposed Changes

Chapter 50: amend the definition of aquifer, and add the definitions of confined aquifer and water use reduction plan.

In Chapter 52, rescind the current subrule pertaining to the withdrawal of water from the Cambrian-Ordovician (Jordan) Aquifer and replace it with a new subrule that:

- Adds tiering criteria to classify each Jordan well requiring a water allocation permit into one of three tiers, depending upon the pumping water levels as compared to the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer at that location.
 - Tier 1 wells shall follow standard water use reporting procedures with no additional requirements.
 - Tier 2 and Tier 3 wells have the additional requirements of site-specific water use reduction plans. The new subrule also includes the actions the Department may take if water levels continue to decline beyond the Tier 3 level.
- Changes the permit cycle for Jordan water allocation permits from ten years to five years.
- For new Jordan wells, requires that a water allocation permit be obtained before a water well construction permit is issued, to ensure adequate water allocation before the expense of the well construction is incurred.
- Retains the current 200 gallons per minute restriction on irrigation, recreational, and aesthetic uses.
- Retains the 2,000 gallons per minute restriction on industrial and power generation uses.
- Replaces the measurement level of piezometric head with the pumping level.
- Prohibits once-through cooling or geothermal use, with an allowance for geothermal use only if all of the withdrawn water is injected back into the aquifer.

In Chapter 53, add two areas to the protected source rules, in Johnson and Linn Counties, and in Webster County, and require that only the Department issue the well construction permits inside of those defined areas.

Public Comment Period and Public Hearing

The Department is proposing three public hearings:

- April 8, 2015 at 1 p.m., Coralville Public Library
- April 9, 2015 at 11 a.m., Wallace State Office Building in Des Moines
- April 10, 2015 at 11 a.m., Fort Dodge Public Library

The public comment period would end April 14, 2015.

An administrative rule jobs impact statement and fiscal impact statement are attached.

Chad Fields
 Water Quality Bureau
 January 30, 2015

ENVIRONMENTAL PROTECTION COMMISSION[567]

Notice of Intended Action

Pursuant to the authority of Iowa Code sections 455B.105, 455B.173 and 455B.263, the Environmental Protection Commission hereby proposes to amend Chapter 50, “Scope of Division,” Chapter 52, “Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water,” and Chapter 53, “Protected Water Sources,” Iowa Administrative Code.

The proposed amendments will revise the rules governing the use of the Cambrian-Ordovician Aquifer (commonly called the Jordan Aquifer) in Iowa. The proposed changes are a result of the recommendations made to the Commission by the EO80 Stakeholder Group that was tasked with evaluating the current rules to better manage the usage of the Jordan Aquifer. At its November 19, 2014, meeting, the Commission directed the EO80 Stakeholder Group and the Department to develop rules for those recommendations that required rule changes. The Commission has now approved those rule recommendations.

The Jordan Aquifer extends underneath much of Iowa and is a significant well water source in the state. Protection from overuse of the resource (also known as dewatering the aquifer) is needed in some parts of the state. The EO80 Stakeholder Group developed a tiered classification system for existing and future Jordan wells that are required to be permitted under the state’s water allocation rules, so that the resource will have a sustainable use into the future. A water allocation permit must be obtained by anyone withdrawing at least 25,000 gallons in a single day during the year. A permit holder withdrawing more water than the aquifer can sustain at that well location will be required to develop a water use reduction plan and implement measures so

that the aquifer can recover to a sustainable level. Other proposed rule amendments require activities that result in closer oversight of the aquifer.

The EO80 Stakeholder Group met five times in 2014, and its recommendations were presented to the Commission on June 17, 2014, and on November 19, 2014. A sixth meeting was held in December with Department staff to finalize the proposed amendments. The following amendments are proposed:

In Chapter 50, amend the definition of aquifer, and add the definitions of confined aquifer and water use reduction plan.

In Chapter 52, rescind the current subrule pertaining to the withdrawal of water from the Cambrian-Ordovician (Jordan) Aquifer and replace it with a new subrule that:

- Adds tiering criteria to classify each Jordan well requiring a water allocation permit into one of three tiers, depending upon the pumping water levels as compared to the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer at that location. Tier 1 wells shall follow standard water use reporting procedures with no additional requirements. Tier 2 and Tier 3 wells have the additional requirements of site-specific water use reduction plans. The new subrule also includes the actions the Department may take if water levels continue to decline beyond the Tier 3 level.

- Changes the permit cycle for Jordan water allocation permits from ten years to five years.

- For new Jordan wells, requires that a water allocation permit be obtained before a water well construction permit is issued (to ensure adequate water allocation before the expense of the well construction is incurred).

- Retains the current 200 gallons per minute restriction on irrigation, recreational, and aesthetic uses.
- Retains the 2,000 gallons per minute restriction on industrial and power generation uses.
- Replaces the measurement level of piezometric head with the pumping level.
- Prohibits once-through cooling or geothermal use, with an allowance for geothermal use only if all of the withdrawn water is injected back into the aquifer.

In Chapter 53, add two areas to the protected source rules, in Johnson and Linn Counties, and in Webster County, and require that only the Department issue the well construction permits inside of those defined areas.

The EO80 Stakeholder Group included the following people:

Name	Organization	Representing
John Crotty	Iowa Environmental Council	Environmental advocacy group
Shawn Kerrick	Koch Nitrogen	Industrial user from business located in affected area
Gale McIntosh	Northway Pump	Water well contractor
Jill Soenen	IA Association of Municipal Utilities	Municipal utility association
Todd Steigerwaldt	City of Marion (Water Works)	Municipal user in affected area
Becky Svatos	Stanley Consultants, IA Association of Business and Industry	Professional consulting engineering firm, business association
Nancy Couser	Environmental Protection Commission	State agency

Any interested person may present written comments on the proposed amendments no later than 4:30 p.m. on April 14, 2015. Written comments should be sent to Diane Moles, Iowa Department of Natural Resources, WSE Section, 502 E. 9th Street, Des Moines, Iowa 50319-0034; fax (515)725-0348; or by e-mail, including the commenter's name, to diane.moles@dnr.iowa.gov.

Public hearings will be held at three locations:

April 8, 2015	1p.m.	Coralville Public Library Meeting Room A 1401 5 th St. Coralville (Please park in the lower level lot and not in the two rows adjacent to the library entrance.)
April 9, 2015	11a.m.	Wallace State Office Building Water Supply Section Conference Room 2N 502 E. 9 th Street Des Moines
April 10, 2015	11a.m.	Fort Dodge Public Library Meeting Room (Large) 424 Central Avenue Fort Dodge

Persons attending the hearing may present their views either orally or in writing. Persons will be asked to give their names and addresses for the record and to confine their remarks to the content of the proposed amendments.

Any person who intends to attend the public hearing and has special requirements such as those related to hearing or mobility impairments should contact the Department to advise of any specific needs.

After analysis and review of this rule making, no impact on jobs has been found.

These proposed amendments are intended to implement Iowa Code sections 455B.105, 455B.171, 455B.173, 455B.261 to 455B.274 and 455B.278.

The following amendments are proposed.

ITEM 1. Amend rule ~~567--50.2(455B)~~ by amending the definition of “*Aquifer*,” and adopting **new** definitions for “*Confined aquifer*” and “*Water use reduction plan*,” as follows:

“*Aquifer*” means a water-bearing geologic formation (soil or rock) of sufficient volume, porosity, and permeability to be capable of yielding a usable quantity of water to a well or spring.

“*Confined aquifer*” means an aquifer which contains water under pressure overlain by impermeable formations such as clay or shale. In a well penetrating a confined aquifer, pressure will cause water to rise above the top of the aquifer. If the pressure in a confined aquifer is sufficiently great, water will rise above the ground surface and flow from a well resulting in a “flowing artesian well” or a “naturally flowing well.”

“*Water use reduction plan*” means a program that establishes numeric water reduction goals (e.g., percent or volume per day) on a short-term time frame through either voluntary or mandatory conservation regulatory requirements (e.g., plumbing codes, sprinkling ordinances, et. al.) for each customer category (residential, commercial, industrial, landscape irrigation, agricultural, recreational, or other). Such a plan shall include a mechanism for evaluating the system’s un-accounted-for water (water audit or the equivalent). Industrial permittee water use reduction plan shall examine reduction of use in heat transfer, materials transfer, use of water for washing, and use of water as an incorporated ingredient.

ITEM 2. Rescind subrule **52.4(3)** and adopt the following **new** subrule **52.4(3)**:

52.4(3) *Withdrawals from the Cambrian-Ordovician (Jordan) aquifer.* Withdrawals of water from the Cambrian-Ordovician (Jordan) Aquifer, including: the St. Peter Sandstone Formation, the Prairie Du Chien Group and the Jordan Sandstone Formation, shall be subject to the following conditions:

a. Two hundred gallon per minute restriction on irrigation, recreational, or aesthetic uses. New withdrawals of water for irrigation, recreational, or aesthetic uses shall not be in excess of 200 gallons per minute. Existing permits for irrigation, recreational and aesthetic uses that authorize withdrawal rates in excess of 200 gallons per minute may be modified or cancelled by the department if, as determined by the department, any well in the vicinity experiences loss of water due to pumping, or if the pumping water level is reduced to or below the levels described in paragraphs “f” and “g” of this subrule.

b. Two thousand gallon per minute restriction on industrial or power generation uses. New withdrawals of water for industrial or power generation uses at one plant location shall not exceed 2,000 gallons per minute. Existing permits for industrial or power generation use that authorize withdrawal rates in excess of 2,000 gallons per minute may be modified or rescinded by the department if any well in the vicinity experiences loss of water due to pumping or if the pumping water level is reduced to or below the levels described in paragraphs “f” and “g” of this subrule.

c. Limited cooling and geothermal use. No once-through (single-pass with disposal to storm sewer or equivalent) cooling water or geothermal usage is allowed. Withdrawals for geothermal purposes are prohibited unless 100% of the withdrawn water is re-injected into the aquifer in accordance with the requirements of the department.

d. Jordan aquifer high capacity permits and wells. Water use permits for the Jordan aquifer shall be issued on a five-year permit cycle. The water allocation permit for wells expected to pump over 25,000 gallons per day from the Jordan aquifer must be obtained from the department before any water well construction permit is issued. After the water allocation permit has been obtained, the county may issue a water well construction permit for any non-public water

supply system, unless the well is located in the protected source areas listed in subrules 53.7(2) and 53.7(3). The department may issue a water well construction permit for any public water supply system or well located in the protected source areas listed in subrules 53.7(2) and 53.7(3). All driller's logs for water use wells completed in the Jordan aquifer shall be submitted to the department and Iowa Geological Survey.

e. Tier 1 Jordan wells. A Jordan water use well is classified as Tier 1 when pumping water levels have not reached Tier 2 or Tier 3 levels described in paragraphs “f” and “g” of this subrule. Permittees with Tier 1 Jordan wells shall follow standard water use reporting procedures for the Jordan aquifer pursuant to rule 567--52.6(455B).

f. Tier 2 Jordan wells. A Jordan well is classified as Tier 2 when the pumping water level measured at the well declines over 300 feet below the 1978 Horick and Steinhilber potentiometric surface, or the pumping water level declines over 50 percent from 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer, whichever is more conservative. Permittees with Tier 2 wells shall implement paragraph “h” of this subrule.

g. Tier 3 Jordan wells. A Jordan well is classified as Tier 3 when the pumping water level measured at the well declines over 400 feet below the 1978 Horick and Steinhilber potentiometric surface, or the pumping water level declines over 75 percent from 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer, whichever is more conservative. Permittees with Tier 3 wells shall implement paragraph “i” of this subrule.

h. Site-specific water use reduction plan for Tier 2 Jordan wells. Permittees with Jordan wells that have reached Tier 2 level pursuant to paragraph “f” of this subrule shall develop a water use reduction plan and submit the plan to the department. The plan must be reviewed and approved by the department. The water use reduction plan shall set a defined usage percent

reduction target that will minimize Jordan aquifer withdrawals and prevent the decline of the water level from reaching Tier 3 category pursuant to paragraph “g” of this subrule. Guidance for writing and implementing water use reduction plans is available in paragraph “k” of this subrule. If the water use reduction plan is not implemented, the department may reduce the permitted water use allocations, pursue enforcement of the permit, or revoke the permit.

i. Enhanced site-specific water use reduction plan and predictive model for Tier 3 Jordan wells. Permittees with Jordan wells that have reached the Tier 3 level pursuant to paragraph “g” of this subrule shall develop an aggressive water use reduction plan using an approved predictive model that will lead to recovery of the pumping water level to elevations above Tier 3 levels. The plan and model predictions shall be reviewed and approved by the department. If water levels continue to decline beyond the Tier 3 level, the department may reduce the permitted water use allocations, pursue enforcement of the permit including aspects of the water use reduction plan, or revoke the permit.

j. Variances. Variances from the restrictions imposed by these rules will be considered by the department through the procedures found in rule 567--50.9(455B) and in IAC 561--Chapter 10.

k. Resources for developing water use reduction plans. The resources suggested by and available from the department as guidance for developing water use reduction plans are listed in paragraph 52.9(3)“d.”

ITEM 3. Amend subrule **52.9(3)** by adopting **new** paragraph “d,” as follows:

d. Resources for water conservation and water use reduction planning. The following resources are suggested by and available from the department as guidance for developing water conservation plans and water use reduction plans:

(1) “Water Wise - Efficiency Planning and Water Conservation Plan Workbook for Water and Wastewater Utilities”. Iowa Association of Municipal Utilities, 2013 (available on-line through the department’s web-site).

(2) “Water Conservation Programs – A Planning Manual”, Manual of Water Supply Practices M52, American Water Works Association, 2006.

(3) “Handbook of Water Use and Conservation” Amy Vickers, Waterplow Press, Amherst, Massachusetts, 2001.

Water conservation plans shall comply with the standards of the American Water Works Association or a reasonable equivalent as determined by the department.

ITEM 4. Adopt the following new subrules **53.7(2)** and **53.7(3)**:

53.7(2) *Cambrian-Ordovician (Jordan) aquifer in Johnson and Linn Counties*

a. Geographical area. The protected water source area includes portions of Johnson and Linn counties. The actual geographical boundaries of the area are defined in subparagraph 53.7(2)“a”(3).

(1) New or modified water use permits. Any new application for a permit to withdraw groundwater or to increase an existing permitted withdrawal of groundwater from within the protected water source area will be restricted or denied, if necessary to preserve public health and welfare.

(2) Withdrawal of groundwater. Withdrawal of groundwater from within the protected

water source area may also be restricted or denied from any water supply well, public or private, and the construction of all new water supply wells shall be restricted or denied, if necessary, to preserve public health and welfare or to minimize adverse effects to the “available” head (i.e., the original pressure head above the top of the aquifer). The Johnson and Linn County Health Departments are not authorized to issue a construction permit for a private well drilled into or through the Cambrian-Ordovician (Jordan) aquifer within the protected water source area without the approval of the department. The department’s water supply engineering section will determine whether the proposed well can be constructed and may require that the well meet public water well standards.

(3) Map of protected water source area. The department shall maintain a map of the protected water source area.

1. The entire following described area within Johnson County and within Linn County is defined as a protected water source.

Johnson County

All areas of Township 79 North, Range 6 West

All areas of Township 79 North, Range 7 West

All areas of Township 79 North, Range 8 West

All areas of Township 80 North, Range 6 West

All areas of Township 80 North, Range 7 West

All areas of Township 80 North, Range 8 West

All areas of Township 81 North, Range 6 West

All areas of Township 81 North, Range 7 West

All areas of Township 81 North, Range 8 West

Linn County

All areas of Township 82 North, Range 6 West

All areas of Township 82 North, Range 7 West

All areas of Township 82 North, Range 8 West

All areas of Township 83 North, Range 6 West

All areas of Township 83 North, Range 7 West

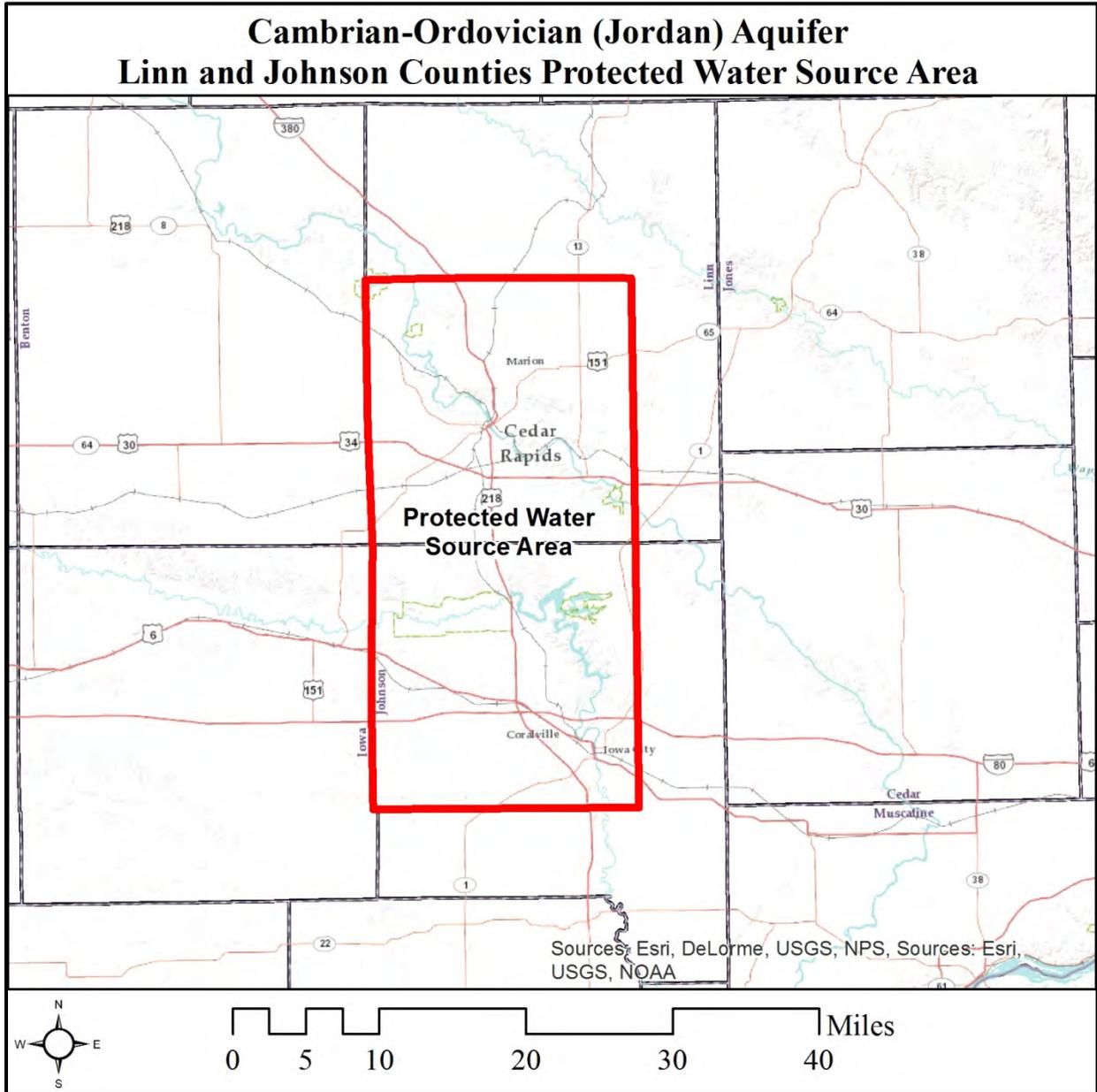
All areas of Township 83 North, Range 8 West

All areas of Township 84 North, Range 6 West

All areas of Township 84 North, Range 7 West

All areas of Township 84 North, Range 8 West

2. Map of the described protected water source area in Linn and Johnson counties.



b. Reserved.

53.7(3) Cambrian-Ordovician (Jordan) aquifer in Webster County

a. Geographical area. The protected water source area includes portions of Webster County. The actual geographical boundaries of the area are defined in subparagraph 53.7(3)“a”(3).

(1) New or modified water use permits. Any new application for a permit to withdraw groundwater or to increase an existing permitted withdrawal of groundwater from within the protected water source area will be restricted or denied, if necessary to preserve public health and welfare.

(2) Withdrawal of groundwater. Withdrawal of groundwater from within the protected water source area may also be restricted or denied from any water supply well, public or private, and the construction of all new water supply wells shall be restricted or denied, if necessary, to preserve public health and welfare or to minimize adverse effects to the “available” head (i.e., the original pressure head above the top of the aquifer). The Webster County Health Department is not authorized to issue a construction permit for a private well drilled into or through the Cambrian-Ordovician aquifer within the protected water source area without the approval of the department. The department’s water supply engineering section will determine whether the proposed well can be constructed and may require that the well meet public water well standards.

(3) Map of protected water source. The department shall maintain a map of the protected water source area.

1. The entire following described area within Webster County is defined as a protected water source.

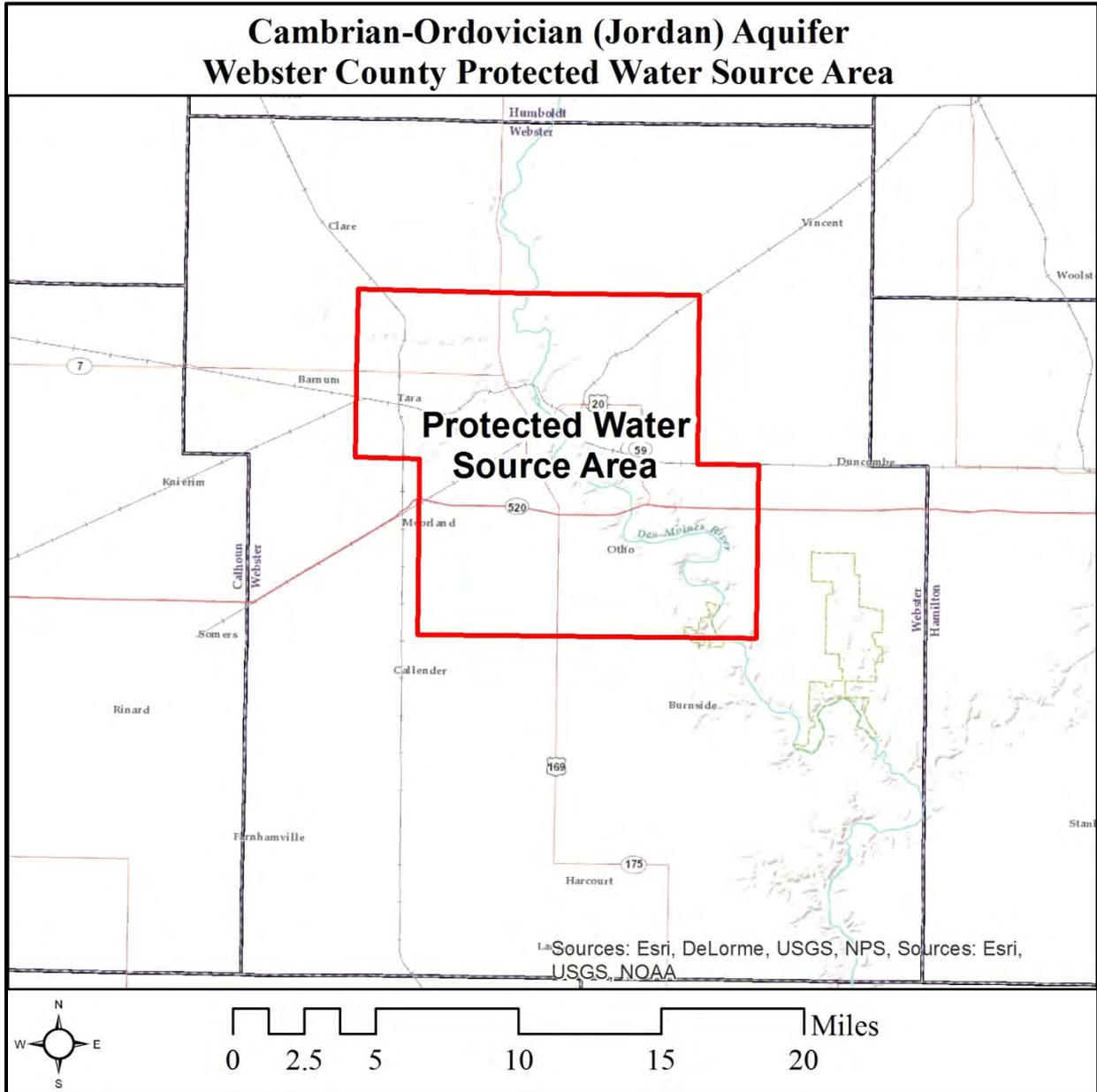
All areas of Township 88 North, Range 28 West

All areas of Township 88 North, Range 29 West

All areas of Township 89 North, Range 28 West

All areas of Township 89 North, Range 29 West

2. Map of the described protected water source area in Webster counties.



b. Reserved.

NOTE: When protected sources are designated they will be listed as part of this rule.

Date

Chuck Gipp, Director

**Administrative Rules
JOBS IMPACT STATEMENT**

1. BACKGROUND INFORMATION

Agency:	Department of Natural Resources (Department) / Environmental Protection Commission (Commission)
IAC Citation:	567-Chapter 50: Scope of Division – Definitions – Forms – Rules of Practice 567-Chapter 52: Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water 567-Chapter 53: Protected Water Sources – Purposes – Designation Procedures – Information in Withdrawal Applications – Limitations – List of Protected Sources
Agency Contact:	Diane Moles , 515/725-0281, diane.moles@dnr.iowa.gov
Statutory Authority:	Iowa Code sections: 455B.105, 455B.173 and 455B.263

Objective:	Amend the existing water allocation and use rules that pertain to the Cambrian-Ordovician (Jordan) Aquifer, a very significant water source in Iowa. The rules were developed to allow implementation of the EO80 Stakeholder Group’s recommendations to better manage the Jordan Aquifer and allow its sustained use into the future.
Summary:	<p>The proposed rules include the following:</p> <ul style="list-style-type: none"> • New tiering criteria to classify each Jordan well requiring a water allocation permit into one of three tiers, depending upon the pumping water levels as compared to the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer at that location. <ul style="list-style-type: none"> ○ Require a water use reduction plan for wells classified in Tier 2 and Tier 3 to minimize the Jordan aquifer withdrawals. ○ Include the actions the Department may take if water levels continue to decline beyond the Tier 3 level. • The creation of two new protected source areas in portions of Johnson/Linn Counties and Webster County for Jordan aquifer permits, which will require the Department to conduct the well construction permitting within that defined area. • Changing the permit cycle for Jordan water allocation permits from ten years to five years. • For new Jordan wells, a requirement that the water allocation permit be obtained before a water well construction permit is issued (to ensure adequate water allocation before the expense of the well construction is incurred). • Retaining the current 200 gallons per minute restriction on irrigation, recreational, and aesthetic uses. • Retaining the 2,000 gallons per minute restriction on industrial and power generation uses. • Replacing the measurement level of piezometric head with pumping level.

	<ul style="list-style-type: none"> Prohibiting once-through cooling or geothermal use, with an allowance for geothermal use only if all of the withdrawn water is injected back into the aquifer.
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2. JOB IMPACT ANALYSIS

<p><input checked="" type="checkbox"/> <i>Fill in this box if impact meets these criteria:</i></p>
<p><input checked="" type="checkbox"/> No Job Impact on private sector jobs and employment opportunities in the State. <i>(If you make this determination, you must include the following statement in the preamble to the rule: "After analysis and review of this rulemaking, no impact on jobs has been found.")</i></p> <p>Explanation: It is anticipated that there will be no job impact with this rulemaking in the State.</p>

<p><input type="checkbox"/> <i>Fill in this box if impact meets either of these criteria:</i></p>
<p><input type="checkbox"/> Positive Job Impact on private sector jobs and employment opportunities in the State. <input type="checkbox"/> Negative Job Impact on private sector jobs and employment opportunities in the State.</p>
<p>Description and quantification of the nature of the impact the proposed rule will have on private sector jobs and employment opportunities:</p>
<p>Categories of jobs and employment opportunities that are affected by the proposed rule:</p>
<p>Number of jobs or potential job opportunities:</p>
<p>Regions of the state affected:</p>
<p>Additional costs to the employer per employee due to the proposed rule: (if not possible to determine, write "Not Possible to Determine.")</p>

3. COST-BENEFIT ANALYSIS

The Agency has taken steps to minimize the adverse impact on jobs and the development of new employment opportunities before proposing a rule. See the following Cost-Benefit Analysis:

The proposed rules are meant to prevent the overuse of, dewatering of, and damage to the Jordan Aquifer, which is a significant water source in Iowa. If the Jordan Aquifer is not protected from overuse and the formation is damaged such that water cannot be obtained from it, there will be significant economic impact to those entities depending upon the Jordan water in the area where the damage occurs. Prudent management at this time is necessary to ensure the resource is available on a sustainable basis into the future.

4. FISCAL IMPACT

Please see the Fiscal Impact Statement for an identification and description of costs the Department anticipates state agencies, local governments, the public, and the regulated entities, including regulated businesses and self-employed individuals, will incur from implementing and complying with the proposed rule.

5. PREAMBLE

The information collected and included in this Jobs Impact Statement must be included in the preamble of the proposed rule, written in paragraph form. For rules that have no impact on jobs (see the first box in number 2 above), the following statement must be included in the preamble: "After analysis and review of this rulemaking, no impact on jobs has been found."

**Administrative Rules
FISCAL IMPACT STATEMENT**

Date: January 26, 2015

Agency: Department of Natural Resources (Department) / Environmental Protection Commission (Commission)

IAC Citation:

567-Chapter 50: Scope of Division – Definitions – Forms – Rules of Practice

567-Chapter 52: Criteria and Conditions for Authorizing Withdrawal, Diversion and Storage of Water

567-Chapter 53: Protected Water Sources – Purposes – Designation Procedures – Information in Withdrawal Applications – Limitations – List of Protected Sources

Agency Contact: Diane Moles, 515/725-0281, diane.moles@dnr.iowa.gov

Summary of the Rule: The proposed rules amend the existing water allocation and use rules that pertain to the Cambrian-Ordovician (Jordan) Aquifer, a very significant water source in Iowa. The rules were developed to allow implementation of the EO80 Stakeholder Group's recommendations to better manage the Jordan Aquifer and allow its sustained use into the future.

Fill in this box if the impact meets any of these criteria:

No Fiscal Impact to the State.

Fiscal Impact of less than \$100,000 annually or \$500,000 over 5 years.

Fiscal Impact cannot be determined.

Brief Explanation:

The proposed rules change the water allocation requirements pertaining to the Jordan Aquifer. The permitting period is changed from 10 years to 5 years, for an estimated 200 permits (350 wells); other activities are necessary to oversee the water usage in those areas where the water table is declining, triggering Tier 2 and Tier 3 actions.

Fill in this box if the impact meets this criteria:

Fiscal Impact of \$100,000 annually or \$500,000 over 5 years.

Brief Explanation:

Assumptions:

All of the estimates are based on staff time using an estimate of \$55 per hour, for both the Department staff and permit holder staff.

Describe how estimates were derived:

Each recommendation that had a required rule change was evaluated, with the cost estimates made for each recommendation. The estimates were further determined to be a one-time cost or an ongoing cost. Estimated costs for the Department for this rulemaking include a one-time cost of \$57,000 and annual cost of \$47,000. Potential costs to water allocation permittees are set out on the next page.

Estimated Impact to the State by Fiscal Year

	<u>Year 1 (FY 2016)</u>	<u>Year 2 (FY 2017)</u>
Revenue by Each Source:		
GENERAL FUND	\$0	\$0
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
	<hr/>	<hr/>
	\$0	\$0
TOTAL REVENUE		
Expenditures:		
GENERAL FUND	\$57,000	\$47,000
FEDERAL FUNDS	\$0	\$0
OTHER (Specify)	\$0	\$0
	<hr/>	<hr/>
	\$57,000	\$47,000
TOTAL EXPENDITURES		
	-\$57,000	-\$47,000
NET IMPACT		

_____ This rule is required by State law or Federal mandate.

Please identify the state or federal law:

_____ Funding has been provided for the rule change.

Please identify the amount provided and the funding source:

Funding has not been provided for the rule.

Please explain how the agency will pay for the rule change:

The Department will use existing resources to implement the proposed rules.

Fiscal impact to persons affected by the rule:

There is a fiscal impact to water allocation permit holders with Jordan aquifer wells. The impact is minor to most permit holders but those holding permits in the areas with pumping levels that are in the Tier 2 or 3 criteria will require additional work, which requires additional resources.

Estimated costs by permit are for the activities needed to be conducted by the permit holder. For all Jordan permits, there would be an additional cost of \$55 per year per permit. For the Tier 2 Jordan permits, there would be an additional one time cost per permit of \$4,700. For the Tier 3 Jordan permits, there would be an additional one-time cost per permit of \$6,500. Water use reduction strategies may be required, which would have a fiscal impact to those areas, but without which, the water table would decline to the extent that the formation was damaged and no water was available.

Fiscal impact to Counties or other Local Governments (required by Iowa Code 25B.6):

The fiscal impact would be to a governmental entity with a water allocation permit for a Jordan well. There are municipalities that use Jordan wells requiring a water allocation permit which would be affected by this rule. The municipalities in areas where the Tier 2 and Tier 3 criteria are met due to declining water levels would have additional fiscal impacts because of the permit requirements.

As listed above, estimated costs by permit are for the activities needed to be conducted by the permit holder. For all Jordan permits, there would be an additional cost of \$55 per year per permit. For the Tier 2 Jordan permits, there would be an additional one time cost per permit of \$4,700. For the Tier 3 Jordan permits, there would be an additional one-time cost per permit of \$6,500. Water use reduction strategies may be required, which would have a fiscal impact to those areas, but without which, the water table would decline to the extent that the formation was damaged and no water was available.

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

6

Decision

TOPIC

Adopted and Filed: Chapter 81: “Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems”

The Commission is asked to approve amendments to the Iowa Administrative Code for Chapter 81, “Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems.”

Reason for Rulemaking:

These amendments enable the department to meet the requirements of Senate File 303 (Home Base Iowa Act) signed by Governor Branstad on May 26, 2014. This new law requires all professional and occupational licensing boards, commissions, and other authorities subject to Iowa Code chapter 272C to adopt rules by January 1, 2015, on military service and veteran certification. The rules must address the process under which each board will provide credit toward licensure qualifications for military service, education, and training and the procedures for expediting reciprocal licensure for veterans who are licensed in other states. The Department is the licensing board for the certification of water and wastewater operators (Iowa Code section 272C.1(6)(x)).

Chapter 81 sets out regulations for the certification of public drinking water supply and wastewater treatment operators and includes exam eligibility requirements, exam protocols, continuing education requirements, renewal requirements, reciprocity requirements and all corresponding fees. The Department’s water and wastewater operator certification program has included the experience and education obtained by military veterans for several years, but the amendments add necessary clarification to meet the requirements of Senate File 303.

Summary of Proposed Changes

The amendments will clarify the process by which the Department provides credit toward certification qualifications for military service, education and training and the procedures for reciprocal certification for veterans who are certified water or wastewater operators in another state.

Stakeholder Involvement

The amendments were presented to the stakeholders on October 3, 2014, and the Department received unanimous support for the rule making. The stakeholders represent the more than 3,400 certified water and wastewater operators in the state and the stakeholders assisting the transition of military service personnel and veterans into civilian jobs through retraining.

Rulemaking and Public Comment

The Notice of Intended Action for this rulemaking was approved by the Commission at its November 19, 2014, meeting. The Notice was published as ARC 1796C in the December 24, 2014, Iowa Administrative Bulletin. Two articles about the rulemaking and public comment opportunity were included in the department's Water Supply Listserv, which was sent to 992 subscribers on November 12, 2014, and to 997 subscribers on December 31, 2014. The rules were reviewed by the Administrative Rules Review Committee on January 6, 2015. One public hearing was held on January 14, 2015, in Des Moines. There were no attendees at the hearing and no comments were received. The amendments are identical to those published under the Notice.

Diane Moles
Executive Officer 2
Water Quality Bureau

January 20, 2015

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed

Pursuant to the authority of Iowa Code sections 272C.4 and 455B.222 and 2014 Iowa Acts, chapter 1116 (Senate File 303), the Environmental Protection Commission hereby amends Chapter 81, “Operator Certification: Public Water Supply Systems and Wastewater Treatment Systems,” Iowa Administrative Code.

Chapter 81 sets out regulations for the certification of public drinking water supply and wastewater treatment operators and includes examination eligibility requirements, examination protocols, continuing education requirements, renewal requirements, reciprocity requirements and all corresponding fees. Chapter 81 is being amended as a result of the Home Base Iowa Act, 2014 Iowa Acts, chapter 1116, section 34.

The amendments clarify the process by which the Department provides credit toward certification qualifications for military service, education and training, and the procedures for reciprocal certification for veterans who are certified water or wastewater operators in another state.

Notice of Intended Action was published in the Iowa Administrative Bulletin on December 24, 2014, as ARC 1796C. Two articles about the rule making and public comment opportunity were included in the Department’s water supply listserv on November 12, 2014, and December 31, 2014, each sent to more than 990 people. The amendments were reviewed by the Administrative Rules Review Committee on January 6, 2015. One public hearing was held on January 14, 2015, at 11 a.m. at the Department’s Water Supply Section Offices in Des Moines. There were no attendees at the hearing and no written comments were received. The amendments are identical to

those published under the Notice.

After analysis and review of this rule making, it is anticipated that the proposed amendments would have a positive impact on jobs by facilitating the licensure of veterans for employment in Iowa.

These amendments are intended to implement Iowa Code sections 455B.211 to 455B.224, Iowa Code chapter 272C, and 2014 Iowa Acts, chapter 1116, division VI (Senate File 303).

These rules will become effective April 22, 2015.

The following amendments are adopted.

ITEM 1. Adopt the following **new** definitions of “Military service,” “Military service applicant” and “Veteran” in rule **567—81.1(455B)**:

“*Military service*” means honorably serving on federal active duty, state active duty, or national guard duty, as defined in Iowa Code section 29A.1; in the military services of other states, as provided in 10 U.S.C. Section 101(c); or in the organized reserves of the United States, as provided in 10 U.S.C. Section 10101.

“*Military service applicant*” means an individual requesting credit toward certification for military education, training, or service obtained or completed in military service.

“*Veteran*” means an individual who meets the definition of “veteran” in Iowa Code section 35.1(2).

ITEM 2. Amend subrule 81.7(1), introductory paragraph, as follows:

81.7(1) *Education and experience requirements.* All applicants shall meet the education and experience requirements for the grade of certificate shown in the table below prior to being allowed to take the examination. Experience shall be in the same classification for which the applicant is applying except that partial credit may be given in accordance with 81.7(2) and 81.7(3). Directly related post-high school education shall be in the same subject matter as the classification in which the applicant is applying. Directly related post-high school education will be granted education credit 2.0 times the number of semester, quarter or CEU credits until January 1, 2006. The director will determine which courses qualify as “directly related” in cases which are not clearly defined. A military service applicant may apply for credit for verified military education, training, or service toward any education or experience requirement for certification, pursuant to subrule 81.7(4).

ITEM 3. Adopt the following **new** subrule 81.7(4):

81.7(4) *Military education, training, and service credit.*

a. The applicant shall identify the experience or education certification requirements for which the credit is requested.

b. As part of the examination application pursuant to subrule 81.9(1), the applicant shall provide documents, military transcripts, a certified affidavit, or forms that verify completion of the relevant military education, training, or service, which may include, when applicable, the applicant’s Certificate of Release or Discharge from Active Duty (DD Form 214) or Verification of Military Experience and Training (VMET) (DD Form 2586).

ITEM 4. Amend subrule 81.9(2) as follows:

81.9(2) *Application evaluation.* The director shall designate department personnel to evaluate all applications for examination, certification, and renewal of certification and upgrading of certification. After evaluation of the application, the department will issue the applicant either a letter of examination eligibility or a letter of examination noneligibility that includes a description of the education or experience requirements that have not been met. The director will review applications when it is indicated that the applicant has falsified information or when questions arise concerning an applicant's qualifications of eligibility for examination or certification.

ITEM 5. Amend subrule 81.11(3) as follows:

81.11(3) *Reciprocity application.*

a. All applicants. Applicants who seek Iowa certification pursuant to subrule 81.11(1) or 81.11(2) shall submit an ~~application for examination~~ Operator Certification Reciprocity Application accompanied by a letter requesting certification pursuant to these subrules. Application for certification pursuant to 81.11(1) and 81.11(2) shall be received by the director in accordance with these subrules. The applicant shall be certified at the appropriate grade pursuant to subrule 81.7(1).

b. Veteran applicants. An applicant who is a veteran shall submit an Operator Certification Reciprocity Application pursuant to paragraph 81.11(3) "a" and shall also

provide such documentation as is needed to verify the applicant's status as a veteran under Iowa Code section 35.1(2). The veteran's application shall be given priority and shall be expedited.

Date

Chuck Gipp, Director

Iowa Department of Natural Resources
Environmental Protection Commission

ITEM

7

FINAL

TOPIC

Final Rule - Chapter 64 --- Wastewater Construction and Operation Permits for Well Construction and Well Service and Well Service Discharges

The Commission will be asked to approve the final rule to amend Chapter 64, “Wastewater Construction and Operation Permits” pursuant to the authority of Iowa Code sections 455B.105(3) and 455B.198.

These proposed rules will renew General Permit 6 which continues to authorize discharge of wastewater associated with well construction activities through the use of best management practices (BMPs) and requires the monitoring of the wastewater effluent to determine compliance with the state’s water quality standards.

The Notice of Intended Action (NOIA) was published in the Iowa Administrative Bulletin on December 10, 2014 as **ARC 1757C**, and can be found on pages 938 and 939. A public hearing was held on January 6, 2014. No comments were received. This amendment is identical to the Notice of Intended Action.

Pursuant to Iowa Code section 17A.5(2)“b” this amendment shall become effective March 1, 2015. This amendment sets an effective date sooner than established by Iowa Code section 17A.5(2) because the rule confers a benefit or removes a restriction on the regulated public in that it prevents a lapse in general permit coverage for well construction and service activities that generate wastewater discharges to waters of the United States. Should the General Permit expire prior to renewal, these well services would not be possible during the period of March 1, 2015 to April 22, 2015 as the issuance of an individual NPDES permit can take as long as six months to obtain for this type of activity.

This amendment is intended to implement Iowa Code section 455B.198.
The amendment will become effective March 1, 2015.
The following amendment is adopted.

Amend subrule 64.15(6) as follows:

64.15(6) “Discharge Associated with Well Construction Activities,” NPDES General Permit No. 6, effective March 1, 2010 2015, to February 28, 2015 2020.

ENVIRONMENTAL PROTECTION COMMISSION[567]

Adopted and Filed Emergency After Notice

Pursuant to the authority of Iowa Code section 455B.105(3) and 455B.198, the Environmental Protection Commission hereby amends Chapter 64, “Wastewater Construction and Operation Permits,” Iowa Administrative Code.

These proposed rules will renew General Permit 6 which continues to authorize discharge of wastewater associated with well construction activities through the use of best management practices (BMPs) and requires the monitoring of the wastewater effluent to determine compliance with the state’s water quality standards.

The Notice of Intended Action (NOIA) was published in the Iowa Administrative Bulletin on December 10, 2014 as **ARC 1757C**, and can be found on pages 938 and 939. A public hearing was held on January 6, 2014. No comments were received. This amendment is identical to the Notice of Intended Action.

Pursuant to Iowa Code section 17A.5(2)“b” this amendment shall become effective March 1, 2015. This amendment sets an effective date sooner than established by Iowa Code section 17A.5(2) because the rule confers a benefit or removes a restriction on the regulated public in that it prevents a lapse in general permit coverage for well construction and service activities that generate wastewater discharges to waters of the United States. Should the General Permit expire prior to renewal, these well services would not be possible during the period of March 1, 2015 to April 22, 2015 as the issuance of an individual NPDES permit can take as long as six months to obtain for this type of activity.

This amendment is intended to implement Iowa Code section 455B.198.

The amendment will become effective March 1, 2015.

The following amendment is adopted.

ITEM 1. Amend the following subrule 64.15(6):

64.15(6) “Discharge Associated with Well Construction Activities” NPDES General Permit No.6, effective March 17 1, ~~2010~~-2015, to February 28, ~~2015~~ 2020.

Date

Chuck Gipp, Director

IOWA DEPARTMENT OF NATURAL RESOURCES

**NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM (NPDES)**

GENERAL PERMIT NO. 6

**EFFECTIVE DATES
MARCH 1, 2015 THROUGH FEBRUARY 28, 2020**

FOR

WELL CONSTRUCTION AND WELL SERVICE DISCHARGES

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PART I. COVERAGE UNDER THIS PERMIT

A. PERMIT AREA

This permit covers all areas of the State of Iowa

B. ELIGIBILITY

1. COVERAGE

Except for discharges identified under Part I.B.2, this permit authorizes well construction and well service related discharges that reach a Water of the United States.

2. LIMITATIONS ON COVERAGE

The following discharges are **not** authorized by this permit:

- A. Well construction and well service discharges mixed with sources other than well construction discharges.
 - B. Well construction and well service discharges resulting in acutely toxic substances reaching Waters of the United States.
 - C. Any well construction and well service discharge covered by an existing individual NPDES permit or which is issued an individual permit in accordance with Part I.C. of this permit.
 - D. Discharges of drilling fluid and drilling mud (567 IAC 49.11.)
 - E. Stormwater associated with industrial or construction activities.
 - F. Discharges from geothermal supply wells also known as “pump and dump wells” that are not under construction or reconstruction.
3. EXCLUSIONS NPDES permits are not required for well construction and well service discharges that do not reach Waters of the United States.

C. REQUIRING AN INDIVIDUAL PERMIT

1. The Department may require any person authorized to discharge under this permit to apply for and obtain an individual NPDES permit. The causes for such a request may include but are not limited to location of the discharge, amount of discharge or history of non-compliance with the general permit. When the Department notifies a discharger to apply for an individual permit, a deadline, not longer than one year, will be established for submitting the application. If a person fails to submit a complete individual NPDES permit application by the deadline established by the Department under this paragraph, his/her coverage under this general permit is automatically terminated at the end of the day specified for the application submittal.
2. Any person authorized to discharge by this permit may apply for an individual permit from the Department. The application for an individual permit shall include DNR NPDES Application Forms 1, 2 and 5, an antidegradation alternatives analysis (or justification for temporary and limited degradation) and all applicable fees and shall be submitted to the Department in accordance with 567 IAC 64.3(4)(a).
3. When an individual NPDES permit is issued to a discharger, the applicability of this general permit to the individual NPDES permit applicant is automatically terminated on the issuance date of the individual permit. When an individual NPDES permit is denied to a person for a discharge otherwise subject to this general permit, the applicability of this general permit to the individual NPDES permit applicant is automatically terminated on the date of such denial, unless otherwise specified by the Department.

D. AUTHORIZATION

1. Well construction and well service discharges that reach Waters of the United States are authorized so long as the conditions of this permit are satisfied.
2. Permittees shall notify the Department no earlier than five (5) calendar days prior to and no later than 24 hours after commencing well construction and/or well service activities on a site. Failure to notify the Department is a violation of this General Permit. Instructions for notification are

included in the DNR supplement named "Guidance Document for Well Construction and Well Service Discharges" and can be viewed or downloaded on the DNR web site: www.iowadnr.gov.

PART II. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, AND OTHER NON-NUMERIC LIMITATIONS

A. PROHIBITION ON NON-WELL CONSTRUCTION AND WELL SERVICE DISCHARGES

All discharges authorized by this permit shall be composed entirely of well construction and well service discharge.

B. RELEASES IN EXCESS OF REPORTABLE QUANTITIES

Any owner or operator identified in the Well Water Pollution Prevention Plan ("WWPPP" or "Plan") is subject to the spill notification requirements as specified in 455B.386 of the Iowa Code. Iowa law requires that as soon as possible but not more than six hours after the onset of a "hazardous condition" the Department and local sheriff's office or the office of the sheriff of the affected county be notified. Well construction and well service activities must cease until the WWPPP described in Part III of this permit is modified to provide a description of the release and the circumstances leading to the release and to identify and provide for the implementation of steps to prevent the reoccurrence of such releases and to respond to such releases.

C. COMPLIANCE WITH EXISTING RULES

Well construction and well service discharges shall be in compliance with 567 I.A.C. 61.3(2).

PART III. WELL WATER POLLUTION PREVENTION PLANS

A site-specific Well Water Pollution Prevention Plan ("WWPPP" or "Plan") shall be developed or obtained by the permittee prior to commencement of well construction or service activities. Plans for public water supply wells must be developed prior to letting bids for the construction project. All well activities that use the services of an engineer shall have an engineer: a) prepare the WWPPP, b) prepare all revisions pursuant to Part III.C, and c) provide the following certification for the WWPPP and any revisions: "The WWPPP is designed using good engineering practices."

The Plan shall identify the anticipated quantities of pollution which may reasonably be expected to affect the quality of the well construction and well service discharge. In addition, the Plan shall describe and ensure the implementation of controls, identified as Best Management Practices or BMPs, which will be used to reduce the pollutants in well construction and well service discharge at the construction site and to assure compliance with the terms and conditions of this permit. Suggested BMPs are listed in the DNR supplement named "Guidance Document for Well Construction and Well Service Discharges" and can be viewed or downloaded on the DNR web site: www.iowadnr.gov.

A. DEADLINES FOR WWPPP PREPARATION AND COMPLIANCE

1. WWPPP PREPARATION DEADLINE

The WWPPP shall be completed prior to the commencement of well construction and well service activities and shall be updated as needed to ensure that the discharge complies with 567 IAC 61.3(2).

2. WWPPP COMPLIANCE DEADLINE

The WWPPP shall provide for compliance with the terms and schedule of the Plan prior to the commencement of well construction and well service activities.

B. SIGNATURE AND PLAN REVIEW

1. The Plan shall be signed in accordance with Part V.G. and be retained according to Part IV of this permit.

2. The permittee shall make Plans available to the Department for review upon request, or in the case of a discharge associated well construction and well service activities that discharges through a large or medium municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system.
3. The Department may notify the permittee at any time that the Plan does not meet one or more of the minimum requirements of this Part. After such notification from the Department, the permittee shall make changes to the Plan and shall submit to the Department a written certification that the requested changes have been made. Unless otherwise provided by the Department, the permittee shall have seven (7) days after such notification to make the necessary changes.
4. All WWPPPs are considered reports that shall be available to the public under Section 308(b) of the CWA and Chapter 22 of the Code of Iowa. However, the permittee may claim any portion of a WWPPP as confidential in accordance with Chapter 22 of The Code of Iowa and Iowa Administrative Code (561)--2.5.

C. KEEPING PLANS CURRENT

The permittee shall amend the Plan whenever there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants to a Water of the United States and which has not been addressed in the Plan, or if the Plan proves to be ineffective in significantly minimizing pollutants from well construction and well service activity, or in otherwise achieving the general objectives of controlling pollutants in discharge associated with well construction and well service activity. In addition, the Plan shall be updated to identify any change or transfer of the permit and permit responsibilities or, if required, by the occurrence of a hazardous condition (as defined in Part VII.H of this permit). Amendments to the Plan may be reviewed by the Department in the same manner as Part III.B.2. The Department retains the right to request and review the Plan before or during the well construction and well service and for a period of six months after permit authorization as noted in Part IV.

D. CONTENTS OF THE WWPPP

The WWPPP shall include the following items:

1. SITE DESCRIPTION

Each Plan shall provide a description of the following:

- A. A description of the planned activity. For example, construction of a water supply well approximately 400 feet in depth. The description must also include ~~and~~ the types of constituents generated and products used in the well construction and well service activities that may be present in the wastewater discharge, e.g. bentonite drilling fluid, polymers, foaming agents, and other chemicals or products needed in well construction and well services that may be discharged with the wastewater.
- B. Estimates of the total amount of well construction and well service wastewater to be discharged.
- C. A site map indicating drainage patterns and approximate slopes, the location of structural and non-structural controls identified in the WWPPP, surface waters (including wetlands), and locations where well construction and well service wastewater is discharged to a surface water; and
- D. The location of the discharge, the point of entrance into the water body, and the name of the receiving water(s).

2. CONTROLS

Each Plan shall include a description of Best Management Practices that will be implemented at the well construction and well service site. The Plan will clearly describe the appropriate BMPs and the timing during the well construction and well service process that the measures will be implemented. (For example, retention ponds with a minimum of 10 minutes retention time will be utilized for air drilling, followed by retention ponds with 3 minutes retention time will be utilized for test pumping.)

The description of BMPs shall address the following minimum components:

A. EROSION AND SEDIMENT CONTROLS

1. **STABILIZATION PRACTICES** A description of temporary and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans

should ensure that existing vegetation is preserved where attainable and that disturbed areas are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures.

2. **STRUCTURAL PRACTICES** A description of structural practices to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas of the site. Such practices may include silt fences, earth dikes, brush barriers, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

B. OTHER CONTROLS

1. **WASTE DISPOSAL** All wastes composed of building materials or other solid or hazardous substances must be removed from the site for disposal in permitted disposal facilities. No such wastes or unused building materials shall be buried, dumped, or discharged at the site.
2. Off-site vehicle tracking of sediments shall be minimized.
3. The Plan shall ensure and demonstrate compliance with applicable State ~~and~~ local waste disposal, sanitary sewer or septic system regulations.

3. INSPECTIONS

Qualified personnel (provided by the permittee) shall inspect all control measures at least once every 6 hours during well construction and well service activities that result in discharge.

A. Based on the results of the inspection, the description of potential pollutant, the types of pollutants to be treated as identified in the Plan in accordance with paragraph III.D.1 of this permit and pollution prevention measures identified in the Plan in accordance with paragraph III.D.2. of this permit shall be revised as appropriate as soon as practicable after such inspection.

B. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date of the inspection, the time of inspection, major observations relating to the performance of the BMPs, and any actions taken to alter the BMPs shall be documented and retained as part of the WWPPP. The report shall be signed by the permittee or co-permittee in accordance with Part V.G. of this permit.

C. Any discharge deficiencies that are found during inspection that are not consistent with this permit require immediate corrective action and modification of the WWPPP.

4. CONTRACTORS

A. CO-PERMITTEE

The WWPPP must clearly identify for each BMP in the Plan the contractor(s) and/or subcontractor(s) that will install, manage, or alter the BMPs. All contractors and subcontractors identified in the Plan must sign a copy of the certification statement in Part III.D.4.B. of this permit in accordance with Part V.G. of this permit. Upon signing the certification, the contractor or sub-contractor is a co-permittee with the owner and other co-permittee contractors. All signatures and certifications must be included in the WWPPP.

B. CERTIFICATION STATEMENT

All contractors and subcontractors identified in a WWPPP in accordance with Part III.D.4.A. of this permit shall sign a copy of the following certification statement before conducting any professional service at the site identified in the WWPPP:

"I certify under penalty of law that I understand the terms and conditions of National Pollutant Discharge Elimination System (NPDES) general permit #6 that authorizes well construction and well service discharges from the construction or well services site. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act and the Code of Iowa, to ensure compliance with the terms and

conditions of the Well Water Pollution Prevention Plan developed under this NPDES permit and other terms and conditions of this NPDES permit."

The certification must include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

The failure of any qualifying individual to provide a signed certification statement does not exempt that individual, or entity from whom they are employed, from meeting the requirements as found in the general permit if they meet the qualifications of a co-permittee.

PART IV. RETENTION OF RECORDS

The permittee shall retain copies of the WWPPP and all records required to be kept by this permit for a period of at least six months from the completion date of ~~the completed~~ well services that require the use of this permit.

If there is a construction trailer, shed, portable document mailbox or other covered structure located on the property the permittee shall retain a copy of the WWPPP and all associated records required by this permit at the construction site from the date of project initiation to the date of completion. If there is no construction trailer, shed or other covered structure located on the property, the permittee shall retain a copy of the Plan and associated records at a readily available alternative site and provide it for inspection upon request. If these documents are maintained at an off-site location such as a corporate office, it shall be provided for inspection no later than three hours after being requested.

PART V. STANDARD PERMIT CONDITIONS

A. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Code of Iowa and the Clean Water Act and is grounds for enforcement action; for termination of coverage under this general permit; and/or, for denial of a request for coverage under a reissued general permit.

B. CONTINUATION OF THE EXPIRED GENERAL PERMIT

This permit expires on February 28, ~~2020~~15. An expired general permit continues in force until replaced by adoption of a new general permit.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department upon request copies of records required to be kept by this permit.

F. OTHER INFORMATION

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in any report to the Department, he or she shall promptly submit such facts or information.

G. SIGNATORY REQUIREMENTS

All Well Water Pollution Prevention Plans, certifications or other information either submitted to the Department or that this permit requires be maintained by the permittee, shall be signed by the appropriate party as indicated in this general permit. If the signatory is not an individual, the person signing shall be as follows:

1. *Corporations.* In the case of corporation, a responsible corporate officer means:
 - A. A president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs similar policy- or decision-making functions; or
 - B. The manager of manufacturing, production, or operating facilities, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2. *Partnerships.* In the case of a partnership, a general partner.
3. *Sole proprietorships.* In the case of a sole proprietorship, the proprietor.
4. *Municipality, state, federal, or other public agency.* In the case of a municipal, state, or other public facility, either the principal executive officer or the ranking elected official. A principal executive officer of a public agency includes:
 - A. The chief executive officer of the agency; or
 - B. A senior executive officer having responsibility for the overall operations of a unit of the agency.

H. CERTIFICATION

Any person signing documents under paragraph V.G. shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

J. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

K. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

L. PROPER OPERATION AND MAINTENANCE

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of the Well Water Pollution Prevention Plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions or this permit.

M. INSPECTION AND ENTRY

The permittee shall allow the Department or an authorized representative of EPA, the State, county, or, in the case of a facility which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment); and
4. Sample any discharge of pollutants.

N. PERMIT ACTIONS

Coverage under this permit may be terminated for cause. The notification of planned changes or anticipated noncompliance does not stay any permit condition.

O. ENVIRONMENTAL LAWS

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

PART VI. ADDITIONAL PERMITTING CLAUSE

If there is evidence indicating potential or realized impacts to water quality due to any discharge from an authorized well construction and well service activity covered by this permit, the owner of such system may be required to obtain an individual permit in accordance with Part I.C. of this permit.

PART VII. DEFINITIONS

- A. "***Acutely Toxic Substances***" means that level of pollutants which would rapidly induce a severe and unacceptable impact on organisms.
- B. "***Best Management Practices***" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- C. "***Contractor(s) and/or Subcontractor(s)***" means any individual or entity who performs work on the well construction/service site involved in installing, managing, and/or altering BMPs intended to manage and treat well construction/service wastewater, or whose on-site work may alter the effectiveness of the BMPs that have been deployed, increase the amount of discharge wastewater, or reduce the quality of the discharge wastewater.
- D. "***CWA***" or "***Clean Water Act***" means the Federal Water Pollution Control Act.
- E. "***Co-permittee***" means any individual who performs work on the well construction/service site involved in installing, managing, and/or altering BMPs intended to manage and treat well construction/service wastewater or whose on-site work may alter the effectiveness of the BMPs that have been deployed, increase the amount of discharge wastewater, or the reduce the quality of the discharge wastewater. Planning and design activities related to development or modification of the WWPPP, by themselves, do not constitute co-permittee status.
- F. "***Department***" means the Iowa Department of Natural Resources.
- G. "***Drilling Fluid and Drilling Mud***" means naturally developed and/or artificially mixed colloidal, polymer, or other water based fluids used in the drilling process to enhance the carrying capacity of the fluid to lift borehole cuttings to the ground surface and stabilize the well borehole.
- H. "***Hazardous Condition***" means any situation involving the actual, imminent, or probable spillage, leakage, or release of a hazardous substance on to the land, into a water of the state, or into the atmosphere, which creates an immediate or potential danger to the public health or safety or to the environment. 455B.381(2), Code of Iowa.
- I. "***Hazardous Substance***" means any substance or mixture of substances that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons, radioactive materials; sludges; and organic solvents.

"Hazardous substances" may include any hazardous waste identified or listed by the administrator of the United State Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under section 311 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous material designated by the secretary of transportation under the Hazardous Materials Transportation Act (49 CFR 172.101). 455B.381(1), Code of Iowa, and 40 CFR Part 116 pursuant to section 311 of the Clean Water Act.

J. "Municipality" means a city, town, borough, county, parish, district, association, or other public body created by or under State law.

K. "Permittee" means the owner of the water supply well.

L. "Plan" means Well Water Pollution Prevention Plan (WWPPP).

M. "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States.

N. "Well Service(s)" means any service that meets the following definitions: "*construction*" of a water well, "*water well*" and "*well reconstruction*" as found in Iowa Code 455B.171, "*water services*" as found in 567 Iowa Administrative Code Chapter 49, and for all well construction performed in accordance with 567 Iowa Administrative Code Chapter 43. Examples of water well and well services include but are not limited to: well drilling and well construction for private and public water supply wells, well servicing, well development, well rehabilitation, well repair, and test pumping of all types of water supply wells, well drilling and construction for geothermal production supply wells, borehole drilling and heat exchanger installation for vertical geothermal closed loop heat exchangers, and any other water well services related activity that generates wastewater.

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

8

DECISION

TOPIC

**Final Rules: Chapters 22, 23, 25, 31, and 33 –
Rescission Rulemaking**

The Department is requesting that the Commission adopt amendments to Chapter 22 "Controlling Pollution," Chapter 23 "Emission Standards for Contaminants," Chapter 25, "Measurement of Emissions," Chapter 31, "Nonattainment Areas," and Chapter 33, "Special Regulations and Construction Permit Requirements for Major Stationary Sources—Prevention of Significant Deterioration (PSD) of Air Quality."

Reason for Rulemaking

The purpose of the rule changes is to rescind unnecessary rules and to update other rules to reduce regulatory requirements. The rules rescinding the Voluntary Operating Permit Program fulfill the recommendations of an Executive Order 80 workgroup. The rules rescinding conditional permits implements the requirements of Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014). The rule changes will also implement a portion of the Department's 5-year rules review plan.

The Department requests to **rescind** the following air quality rules:

- 1) Voluntary Operating Permit (VOP) program;
- 2) Conditional permits;
- 3) Adoption by reference of several federal air toxic and new source performance standards that do not apply to any Iowa sources; and
- 4) References to air quality forms that no longer exist or are explained elsewhere in rule.

The Department also requests two rule **updates** to reduce regulatory requirements, as follows:

- 1) Sunset the requirements for testing and monitoring of mercury emissions that are being addressed by federal regulations; and
- 2) Remove several compounds from the definition of volatile organic compounds (VOC) to match recent federal amendments.

Summary of Rule Changes

Rescission of VOP program

The Department originally developed the VOP program in the mid-1990's to assist facilities that wanted to take voluntary limitations on emissions and operations to avoid having to obtain a federal Title V operating permit. The Voluntary Operating Permit (VOP) Executive Order (EO) 80 stakeholder group recommended that the Department

work individually with each of the VOP facilities to assist the affected facilities in utilizing other existing permitting options that meet the needs of the facility and the Department.

All 18 facilities that had previously used the VOP program to establish limits to stay out of the Title V program have been transitioned over to other permitting options. Since the VOP program is no longer in use, the VOP rules can be rescinded.

Rescission of conditional permits program

Conditional permits were added to the Iowa Code in the 1970's to facilitate electric utility rate setting. The Iowa Utilities Board changed the rate setting requirements so that conditional permits were not needed. Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014) removed the statutory authority for conditional permits. The rule changes would rescind conditional permit references that are no longer supported by statutory authority.

Rescission of air toxics standards and new source performance standards

The Department requests permissions rescind adoption by reference of several federal air toxics standards (also known as National Emission Standards for Hazardous Air Pollutants or "NESHAP") and federal new source performance standards (NSPS). The rescissions affect industries such as mineral processing that do not currently operate in Iowa, and are unlikely to operate in Iowa in the future. *(Please see the attached table of NESHAP and NSPS recommended for rescission.)*

Sunsetting the mercury emissions testing and monitoring rules

The Commission previously adopted the mercury emissions testing and monitoring rule in 2009 as temporary requirements until EPA finalized its mercury air toxics standards (MATS) for electric utility steam generating units (EGUs). EPA has now finalized MATS, which includes mercury emissions standards and monitoring requirements. The state rule is duplicative of the MATS requirements and is no longer needed.

The Department had proposed a sunset date of April 16, 2015, for the mercury rule, which is the MATS compliance date for existing EGUs. However, the Department is recommending that the sunset date in the final rule be revised to April 22, 2015. The date change will ensure that no conflict exists between the sunset date in the rule and the 35-day effective date for an Adopted and Filed rule making required under Iowa Code section 17A.5. If a facility receives an extension to comply with MATS, the Department recommends that the facility continue to comply with the mercury emissions testing and monitoring rules until the date the facility is required to comply with MATS, or, alternatively, is no longer subject to MATS compliance requirements.

Removing compounds from the list of volatile organic compounds (VOC)

EPA revised the definition of VOC to exclude several compounds because the compounds make a negligible contribution to tropospheric ozone formation. The Department is recommending that the Commission adopt EPA's revisions so that

facilities no longer need to count the excluded compounds towards potential VOC emissions in air permit applications and emissions inventory calculations and reporting.

Rescission of rules for air quality forms in Chapter 20

567 IAC 20.3 includes names and descriptions of the Department's air quality forms. The Department is recommending elimination of this rule because some of the forms are no longer in use, and other forms are referenced elsewhere in the air quality rules.

Public Comments

The Department received no public comments on the Notice of Intended action at the public hearing held on January 26, 2015, and received no written comments prior to the January 26 public comment deadline. Except for the change in the sunset date from April 16, 2015, to April 22, 2015, in the mercury monitoring rule described above, the Department did not make any changes to the final rules from the rule changes proposed in the Notice of Intended Action.

If the Commission approves the final rules, the Adopted and Filed rules will be published on March 18, 2015, and will become effective on April 22, 2015.

The Adopted and Filed rules, a table of NESHAP and NSPS being rescinded, Jobs Impact Statement, and Fiscal Impact Statement are attached.

Christine Paulson
Environmental Specialist Senior
Program Development Section, Air Quality Bureau
Memo date: February 2, 2015

ENVIRONMENTAL PROTECTION COMMISSION [567]

Adopted and Filed

Pursuant to the authority of Iowa Code section 455B.133, the Environmental Protection Commission (Commission) hereby amends Chapter 20, “Scope of Title—Definitions—Forms—Rules of Practice,” Chapter 22 “Controlling Pollution,” Chapter 23, “Emissions Standards for Contaminants,” Chapter 25, “Measurement of Emissions,” Chapter 31, “Nonattainment Areas,” and Chapter 33, “Special Regulations and Construction Permit Requirements for Major Stationary Sources—Prevention of Significant Deterioration (PSD) of Air Quality,” of 567 Iowa Administrative Code.

The rule making rescinds unnecessary rules and updates other rules to reduce regulatory requirements. The rescission of the Voluntary Operating Permit program fulfills the recommendations of an Executive Order 80 stakeholder workgroup. The amendments also implement a portion of the Department of Natural Resources' (Department's) 5-year rules review plan to accomplish the requirements of Iowa Code section 17A.7(2).

The Commission rescinds the following air quality rules:

- 1) References to air quality forms that no longer exist or are explained elsewhere in rule;
- 2) Conditional permits;
- 3) Voluntary Operating Permit program; and
- 4) Adoption by reference of several air toxics standards and new source performance standards that do not apply to any Iowa sources.

The Commission is also reducing regulatory requirements by:

- 1) Amending the definition of volatile organic compounds to remove several compounds;
- and

2) Sunsetting the requirements for testing and monitoring mercury emissions that are being addressed by federal regulations.

Notice of Intended Action was published in the Iowa Administrative Bulletin on December 24, 2014, as **ARC 1795C**, and a public hearing was held on January 26, 2015, in Windsor Heights, Iowa. The Department received no comments at the public hearing. The Department did not receive any written comments prior to the January 26, 2015, deadline for public comments. The Commission made a minor change to the adopted amendment in Item 23, as described below, from the amendment published under Notice of Intended Action. The Commission did not make any other changes to the adopted amendments from those published under Notice of Intended Action.

Volatile Organic Compounds

Background

Between July 2, 2012, and March 27, 2014, the United States Environmental Protection Agency (EPA) published revisions to remove several compounds from the definition of volatile organic compounds (VOC). The excluded compounds are HFO-1234ze, HFE-134, HFE-236cal2, HFE-338pcc13, H-Galden 1040X (H-Galden ZT 130, 150 or 180), SolsticeTM 1233zd(E), HFO-1234yf, and 2-amino-2-methyl-1-propanol (AMP). EPA removed the compounds because the compounds make a negligible contribution to tropospheric ozone formation.

The Commission is adopting EPA's revisions so that state rules match current federal regulations. The rule change is a benefit to the regulated community because affected facilities will no longer need to count these compounds towards potential or actual VOC emissions for permitting or emission inventory purposes.

Adopted Amendment

Item 1 amends rule 567—20.2(455B) to revise the definition of “volatile organic compounds,” or “VOC” to adopt by reference the current federal definition of “VOC” and to remove several compounds from the list of VOCs (see also Item 23).

References to Air Quality Forms

Background

Rule 567—20.3(455B), air quality forms generally, includes the names and descriptions of forms that are used by the public. The Department reviewed this rule and found that forms referenced in the rule are either no longer in use, or are referenced elsewhere in other air quality rules. The Commission is rescinding this rule to eliminate unnecessary rules and to meet the requirements of Iowa Code section 17A.7(2).

Adopted Amendment

Item 2 rescinds and reserves rule 567—20.3(455B) to eliminate obsolete and duplicative references to air quality forms.

Conditional Permits

Background

Conditional permits were added to the Iowa Code in the 1970s to facilitate electric utility rate setting. The Iowa Utilities Board changed the rate-setting requirements so that conditional permits were not needed. The Department has no record of issuing a conditional permit to an electric utility. 2014 Iowa Acts, Senate File 2197, signed by Governor Branstad on March 14, 2014, removed the statutory authority for conditional permits. The Commission is removing rule provisions for conditional permits as part of the five-year rules review required in Iowa Code

section 17A.7(2). Removing outdated rules will clarify and streamline the Department's air quality program.

Adopted Amendments

The Commission adopts Items 3 through 11 to rescind all rule requirements and references for conditional permits (see also Items 22 and 23).

Item 3 amends the introductory paragraph of subrule 22.1(1) to remove a reference to conditional permits.

Item 4 amends the introductory paragraph of subrule 22.1(3) to remove references to conditional permits.

Item 5 rescinds and reserves subrule 22.1(4) to remove conditional permit requirements.

Item 6 amends subrule 22.2(2) to remove a reference to conditional permits.

Item 7 amends subrule 22.2(3) to remove a reference to conditional permits.

Item 8 amends the introductory paragraph of subrule 22.3(1) to remove references to conditional permits.

Item 9 rescinds and reserves paragraph 22.3(3)“d” to remove conditional permit requirements.

Item 10 amends paragraph 22.3(3)“g” to remove references to conditional permits.

Item 11 amends paragraph 22.3(4)“a” to remove references to conditional permits.

Voluntary Operating Permits

Background

The Department developed the Voluntary Operating Permit (VOP) program to assist facilities that wanted to take voluntary limitations on emissions and operations to avoid having to

obtain a Title V operating permit. In the mid-1990s, EPA required the Department to have a federally enforceable operating permit program to address existing facilities that wanted to establish limits below the Title V operating permit program thresholds. The Department's Air Construction Permit program also provides a mechanism to establish limits for facilities to remain below the Title V operating permit program thresholds.

An Executive Order 80 (EO80) stakeholder group was formed to make recommendations to the Commission on the VOP program. The EO80 stakeholder group recommended rescinding the VOP rules. The Department worked individually with each of the VOP facilities to transition these facilities to alternate permitting options. The Department completed the necessary permitting activities in late May 2014. Table 1 lists all of the facilities moved out of the VOP program and includes descriptions of the alternative mechanisms used, if any, to ensure that potential emissions at each facility remain below Title V program thresholds.

Table 1: Summary of VOP Transitions

Facility	New Permit Format (If Required)
Cargill, Buffalo	Facility has a Group 1 Grain Elevator permit.
Estherville Municipal Utility, Estherville	Construction permits issued.
Ferguson Elevator Corporation, Ferguson	No permit required. The facility is closed.
Flexible Industries Company, Burlington	No permit required. The facility is closed.
JBS USA LLC, Marshalltown	The facility transitioned to a Title V operating permit to allow for projected emissions increases.
Kinze Manufacturing Inc., Williamsburg	Construction permits issued.
Klinger Paint Company, Cedar Rapids	Construction permits issued.
LG Everist Inc., Hawarden	Construction permit issued.
Maaco Auto Repair, Council Bluffs	Facility has a permit-by-rule permit.
McGregor Municipal Utilities, McGregor	Construction permits issued.
MicroSoy Corporation/West Central Coop, Jefferson	Construction permits issued.
Paxton & Vierling Steel Company, Carter Lake	Construction permits issued.
Peoples Natural Gas, Council Bluffs	No permit required. The facility is closed.
Phillips Pipe Line Company/Noble Petro Inc., Council Bluffs	Construction permit issued.
Rock Rapids Municipal Utilities, Rock Rapids	Construction permit issued.
Spencer Municipal Utilities, Spencer	Construction permits issued.
Tama Packing Company, Tama	No permit required. The facility is closed. New equipment was permitted when the facility reopened and under a new facility name and number.
The Dial Corporation/Pinnacle Foods Group Inc., Fort Madison	Construction permits issued.

Adopted Amendments

The Commission adopts the amendments in Items 12 through 17 to remove the requirements for and references to the VOP program.

Item 12 amends the definition “designated representative” in rule 567—22.100(455B) to remove the reference to the voluntary operating permit rules.

Item 13 rescinds and reserves rules 567—22.200(455B) to 567—22.209(455B) to remove voluntary operating permit requirements.

Item 14 amends the introductory paragraph of rule 567—22.300(455B) to remove the reference to voluntary operating permit rules.

Item 15 amends paragraph 22.300(2)“c” to remove references to voluntary operating permits.

Item 16 amends the introductory paragraph of paragraph 22.300(8)“a” to remove references to voluntary operating permits.

Item 17 amends paragraph 22.300(9)“a” to remove references to voluntary operating permits.

New Source Performance Standards and Air Toxics Standards

Background

The U.S. Clean Air Act (CAA) obligates the EPA to issue standards to control air pollution. Two categories of standards, the new source performance standards (NSPS) and air toxics standards (formally called national emission standards for hazardous air pollutants or NESHAP), set standards and deadlines for industrial, commercial and institutional facilities to meet uniform standards for equipment operation and air pollutant emissions.

The CAA allows a state or local agency to implement NSPS and NESHAP as a “delegated authority.” Upon state adoption, the Department becomes the delegated authority for the specific NSPS or NESHAP and is the primary implementation agency in Iowa. Two local air quality agencies, Polk County and Linn County, implement these standards within their counties.

Iowa's rules, including all compliance deadlines, are identical to the federal NSPS and NESHAP as of a specific date.

The Department identified previously adopted NSPS and NESHAP that do not affect any facilities in Iowa and are unlikely to affect any Iowa facilities in the future. Most of the federal standards apply to mineral and material processing.

The Commission is rescinding the paragraphs that adopt by reference these NSPS and NESHAP. The rescissions accomplish the Department's goal of eliminating obsolete rules and meet the requirements in Iowa Code section 17A.7(2). If an affected facility should plan to locate in Iowa in the future, the Department will evaluate whether to request adoption of the standards at that time. Removing the unnecessary provisions makes the rules more accessible and understandable for regulated entities and the public.

Adopted Amendments

Item 18 rescinds and reserves paragraphs 23.1(2)“g,” “h,” “m,” “n,” “o,” and “p” to remove the adoption by reference of NSPS under 40 Code of Federal Regulations (CFR) Part 60 for petroleum production, secondary lead smelters, primary copper smelters, primary zinc smelters, primary lead smelters, and primary aluminum reduction plants, respectively.

Item 19 rescinds and reserves paragraphs 23.1(3)“b,” “c,” “h,” and “j” to remove the adoption by reference of the NESHAP under 40 CFR Part 61 for beryllium, beryllium rocket motor firing, inorganic arsenic emissions from arsenic trioxide and metallic arsenic production facilities, and inorganic arsenic emissions from primary copper smelters, respectively.

Item 20 rescinds and reserves paragraphs 23.1(4)“j,” “p,” “x,” “ac,” “ai,” “al,” “bc,” “bq,” “bt,” “dr,” and “dt” to remove the adoption by reference of the NESHAP under 40 CFR Part 63 for polyvinyl chloride and copolymers production, primary aluminum production plants,

secondary lead smelting, petroleum production, ship building and ship repair, steel pickling plants, primary copper smelting, primary lead smelting, taconite iron ore processing, and primary magnesium refining, respectively.

Mercury Emissions Testing and Monitoring Rule

Background

The Commission adopted the mercury emissions testing and monitoring rule in 2009 as a temporary requirement until EPA finalized its mercury air toxics standards (also known as “MATS”) for electric utility steam generating units (EGUs). EPA has now finalized MATS, which includes mercury emissions standards and monitoring requirements. The state rule is duplicative of the MATS requirements and is no longer needed.

The Commission proposed in the Notice of Intended Action a sunset date for the mercury rule of April 16, 2015, which is the MATS compliance date for existing EGUs. However, the Commission revised the sunset date to April 22, 2015, in the adopted amendment. The date change ensures that no conflict exists between the sunset date in the rule and the 35-day effective date for an Adopted and Filed rule making required under Iowa Code section 17A.5.

If a facility receives an extension to comply with MATS, the Commission is adopting rule changes requiring that the facility continue to comply with the mercury monitoring rules until the date the facility is required to comply with MATS, or, alternatively, is no longer subject to MATS compliance requirements.

Adopted Amendment

Item 21 amends the introductory paragraph of rule 567—25.3 (455B) to add a sunset date for the state’s mercury emissions testing and monitoring requirements.

Additional Amendments

Item 22 amends paragraph 31.20(1)“m” to remove the reference to conditional permits. The Commission rescinds all rule requirements and references to conditional permits, as described above for Items 3 through 11.

Item 23 amends the definition “enforceable permit condition” and “volatile Organic Compounds” or “VOC” in subrule 33.3(1). The revision to the definition of “enforceable permit condition” removes the reference to conditional permits and is the same as the amendment described above for Item 22. The change to the definition of “volatile Organic Compounds” or “VOC” is the same as the revision explained above for Item 1.

Jobs Impact Statement

The following is a summary of the jobs impact statement. The complete jobs impact statement is available from the Department upon request.

After analysis and review, the Department has determined that the amendments will have a positive impact on private sector jobs.

Removing compounds from the list of VOCs

Revising the definition of “VOC” in rule 567—20.2(455B) and in subrule 33.3(1) will have a positive impact on facilities because the compounds being excluded no longer need to be considered when permit applications or emissions inventories are prepared.

Eliminating obsolete and redundant rule references to air quality forms

Rescinding rule 567—20.3(455B) will benefit the regulated community and the public by providing current and nonduplicative references to air quality forms.

Rescinding the rules for conditional permits

Rescinding the rule requirements for and references to conditional permits will have no impact on jobs because the Department has no record of issuing a conditional permit to an electric utility. However, rescinding the obsolete rule requirements for and references to conditional permits as described above should benefit the regulated community and the public by providing them with up-to-date air quality requirements.

Rescinding the VOP program rules

Businesses with a VOP permit were required to renew the application every five years. The VOP application included all emissions at the facility and took a considerable amount of time to complete. Rescinding the VOP program rule requirements and references as noted above reduces the regulatory burden for businesses by eliminating the five-year renewal requirement, thus saving the time it takes to draft and submit the comprehensive application.

Removing adoption by reference of NSPS and NESHAP

Iowa currently has no industries affected by the NSPS and NESHAP being rescinded in subrules 23.1(2), 23.1(3), and 23.1(4), and these requirements are unlikely to affect any Iowa facilities in the future. Rescinding these standards streamlines state air quality rules and will have a positive impact on regulated community and the public.

Sunseting the mercury testing and monitoring rule

Adding a sunset date to the mercury monitoring requirements in rule 567—25.3(455B) will have a positive impact on affected facilities by eliminating potentially duplicative and expensive testing and monitoring requirements.

These amendments are intended to implement Iowa Code section 455B.133.

These amendments will become effective on April 22, 2015.

The following amendments are adopted.

ITEM 1. Amend rule **567—20.2(455B)**, definition of “Volatile organic compounds,” as follows:

“*Volatile organic compounds*” or “*VOC*” means any compound included in the definition of “volatile organic compounds” found at 40 CFR Section 51.100(s) as amended through ~~January 21, 2009~~ March 27, 2014.

ITEM 2. Rescind and reserve rule **567—20.3(455B)**.

ITEM 3. Amend subrule 22.1(1), introductory paragraph, as follows:

22.1(1) *Permit required.* Unless exempted in subrule 22.1(2) or to meet the parameters established in paragraph “c” of this subrule, no person shall construct, install, reconstruct or alter any equipment, control equipment or anaerobic lagoon without first obtaining a construction permit, ~~or conditional permit~~, or permit pursuant to rule 567—22.8(455B), or permits required pursuant to rules 567—22.4(455B), 567—22.5(455B), 567—31.3(455B), and 567—33.3(455B) as required in this subrule. A permit shall be obtained prior to the initiation of construction, installation or alteration of any portion of the stationary source or anaerobic lagoon.

ITEM 4. Amend subrule 22.1(3), introductory paragraph, as follows:

22.1(3) *Construction permits.* The owner or operator of a new or modified stationary source shall apply for a construction permit ~~unless a conditional permit is required by Iowa Code chapter 455B or subrule 22.1(4) or requested by the applicant in lieu of a construction permit.~~

Two copies of a construction permit application for a new or modified stationary source shall be

presented or mailed to Department of Natural Resources, Air Quality Bureau, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324. Alternatively, the owner or operator may apply for a construction permit for a new or modified stationary source through the electronic submittal format specified by the department. The owner or operator of any new or modified industrial anaerobic lagoon or a new or modified anaerobic lagoon for an animal feeding operation other than a small operation as defined in rule 567—65.1(455B) shall apply for a construction permit. Two copies of a construction permit application for an anaerobic lagoon shall be presented or mailed to Department of Natural Resources, Water Quality Bureau, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319.

ITEM 5. Rescind and reserve subrule **22.1(4)**.

ITEM 6. Amend subrule 22.2(2) as follows:

22.2(2) Public notice and participation. A notice of intent to issue a ~~conditional or~~ construction permit to a major stationary source shall be published by the department in a newspaper having general circulation in the area affected by the emissions of the proposed source. The notice and supporting documentation shall be made available for public inspection upon request from the department's central office. Publication of the notice shall be made at least 30 days prior to issuing a permit and shall include the department's evaluation of ambient air impacts. The public may submit written comments or request a public hearing. If the response indicates significant interest, a public hearing may be held after due notice.

ITEM 7. Amend subrule 22.2(3) as follows:

22.2(3) *Final notice.* The department shall notify the applicant in writing of the issuance or denial of a construction ~~or conditional~~ permit as soon as practicable and at least within 120 days of receipt of the completed application. This shall not apply to applicants for electric generating facilities subject to Iowa Code chapter 476A.

ITEM 8. Amend subrule 22.3(1), introductory paragraph, as follows:

22.3(1) *Stationary sources other than anaerobic lagoons.* In no case shall a construction permit ~~or conditional permit~~ which results in an increase in emissions be issued to any facility which is in violation of any condition found in a permit involving PSD, NSPS, NESHAP or a provision of the Iowa state implementation plan. If the facility is in compliance with a schedule for correcting the violation and that schedule is contained in an order or permit condition, the department may consider issuance of a construction permit ~~or conditional permit~~. A construction ~~or conditional~~ permit shall be issued when the director concludes that the preceding requirement has been met and:

ITEM 9. Rescind and reserve paragraph **22.3(3)“d.”**

ITEM 10. Amend paragraph **22.3(3)“g”** as follows:

g. The issuance of a permit ~~or conditional permit~~ (approval to construct) shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the state implementation plan and any other requirement under local, state or federal law.

ITEM 11. Amend paragraph **22.3(4)“a”** as follows:

a. When an application for a construction ~~or conditional~~ permit is denied, the applicant shall be notified in writing of the reasons therefor. A denial shall be without prejudice to the right of the applicant to file a further application after revisions are made to meet the objections specified as reasons for the denial.

ITEM 12. Amend rule **567—22.100 (455B)**, definition of “Designated representative,” as follows:

“Designated representative” means a responsible natural person authorized by the owner(s) or operator(s) of an affected source and of all affected units at the source, as evidenced by a certificate of representation submitted in accordance with Subpart B of 40 CFR Part 72 as amended to October 24, 1997, to represent and legally bind each owner and operator, as a matter of federal law, in matters pertaining to the acid rain program. Whenever the term “responsible official” is used in ~~rules 567—22.100(455B) to 567—22.20822.148(455B)~~ 567—Chapter 22, it shall be deemed to refer to the designated representative with regard to all matters under the acid rain program.

ITEM 13. Rescind and reserve rules **567—22.200(455B) to 567—22.209 (455B)**.

ITEM 14. Amend rule **567—22.300 (455B)**, introductory paragraph, as follows:
567—22.300(455B) Operating permit by rule for small sources. Except as provided in ~~567—subrules 22.201(2) and subrule 22.300(11)~~, any source which otherwise would be required to obtain a Title V operating permit may instead register for an operation permit by rule for small

sources. Sources which comply with the requirements contained in this rule will be deemed to have an operating permit by rule for small sources. Sources which comply with this rule will be considered to have federally enforceable limits so that their potential emissions are less than the major source thresholds for regulated air pollutants and hazardous air pollutants as defined in rule 567—22.100(455B).

ITEM 15. Amend paragraph **22.300(2)“c”** as follows:

c. Nothing in this rule shall prevent any stationary source which has had a Title V operating permit ~~or a voluntary operating permit~~ from qualifying to comply with this rule in the future in lieu of maintaining an application for a Title V operating permit ~~or a voluntary operating permit~~ or upon rescission of a Title V operating permit ~~or a voluntary operating permit~~ if the owner or operator demonstrates that the stationary source is in compliance with the emissions limitations in subrule 22.300(6).

ITEM 16. Amend paragraph **22.300(8)“a,”** introductory paragraph, as follows:

a. Duty to apply. Any person who owns or operates a source otherwise required to obtain a Title V operating permit and which would be eligible for an operating permit by rule for small sources must either register for an operating permit by rule for small sources, ~~apply for a voluntary operating permit,~~ or apply for a Title V operating permit. Any source determined not to be eligible for an operating permit by rule for small sources, and operating without a valid Title V ~~or a valid voluntary~~ operating permit, shall be subject to enforcement action for operation without a Title V operating permit, except as provided for in the application shield provisions contained in ~~rules~~ rule 567—22.104(455B) and 567—22.202(455B). For each source registering

for an operating permit by rule for small sources, the owner or operator or designated representative, where applicable, shall present or mail to the Air Quality Bureau, Iowa Department of Natural Resources, 7900 Hickman Road, Suite 1, Windsor Heights, Iowa 50324, one original and one copy of a timely and complete registration form in accordance with this rule.

ITEM 17. Amend paragraph **22.300(9)“a”** as follows:

a. If the issuance of a construction permit acts to make the source no longer eligible for an operating permit by rule for small sources, the source shall, within 12 months of issuance of the construction permit, submit an application for ~~either a Title V operating permit or a voluntary operating permit.~~

ITEM 18. Rescind and reserve paragraphs **23.1(2) “g,” “h,” “m,” “n,” “o,” and “p.”**

ITEM 19. Rescind and reserve paragraphs **23.1(3) “b,” “c,” “h,” and “j.”**

ITEM 20. Rescind and reserve paragraphs **23.1(4) “j,” “p,” “x,” “ac,” “ai,” “al,” “bc,” “bq,” “bt,” “dr,” and “dt.”**

ITEM 21. Amend rule 567—25.3 (455B), introductory paragraph, as follows:

567—25.3 (455B) Mercury emissions testing and monitoring. Any stationary, coal-fired boiler or stationary, coal-fired combustion turbine serving, at any time since the later of November 15, 1990, or the start-up of the unit’s combustion chamber, a generator with a

nameplate capacity of more than 25 megawatt electrical (MWe) producing electricity for sale is an affected source under the provisions of this rule.

The provisions of this rule expire on April 22, 2015, except for any affected facility that receives an extension to comply with the emission standards for hazardous air pollutants: coal- and oil-fired electric utility steam generating units (EGUs) (40 CFR Part 63, Subpart UUUUU, commonly known as mercury air toxics standards (MATS)). Any facility receiving an extension of the MATS compliance date shall continue to comply with the provisions of this rule until the date the facility is required to comply with MATS or alternatively is no longer subject to the MATS compliance requirements. However, facilities complying with the requirements of this rule as specified in subrule 25.3(3), continuous emissions monitoring systems (CEMS), may submit a written request to the department to discontinue concurrent, annual stack tests. The department will evaluate and grant requests on a case-by-case basis, based upon previous stack test results and how recent the last stack test occurred or other extenuating circumstances, such as those that may cause testing conditions to be unrepresentative of normal operations or cause tests to be unsafe to perform. If the department grants a request, the facility will be required to continue operating CEMS and conduct relative accuracy test audits (RATAs), as specified in subrule 25.3(3), until the facility is required to comply with MATS or, alternatively, is no longer subject to MATS compliance requirements.

ITEM 22. Amend paragraph **31.20(1)“m”** as follows:

m. “Enforceable permit condition” for the purpose of this rule means any of the following limitations and conditions: requirements developed pursuant to new source performance standards, prevention of significant deterioration standards, emission standards for

hazardous air pollutants, requirements within the state implementation plan, and any permit requirements established pursuant to this rule, or under ~~conditional~~, construction or Title V operating permit rules.

ITEM 23. Amend subrule **33.3(1)**, the definitions of “Enforceable permit condition” and “Volatile organic compounds,” as follows:

“*Enforceable permit condition*,” for the purpose of this chapter, means any of the following limitations and conditions: requirements developed pursuant to new source performance standards, prevention of significant deterioration standards, emissions standards for hazardous air pollutants, requirements within the SIP, and any permit requirements established pursuant to this chapter, permit requirements established pursuant to 40 CFR 52.21 or Part 51, Subpart I, as amended through October 20, 2010, or under ~~conditional~~, construction or Title V operating permit rules.

“*Volatile organic compounds*” or “*VOC*” means any compound included in the definition of “volatile organic compounds” found at 40 CFR 51.100(s) as amended through ~~January 21, 2009~~ March 27, 2014.

Date

Chuck Gipp, Director

NESHAP and NSPS
Recommended for Rescission

Source(s) Affected	Iowa Rules (567 IAC Chapters 23 and 25)	CFR (Federal rule)
Primary Copper Smelters	23.1(2)"b" and 23.1(4)"bq"	40 CFR 60 Subpart P 40 CFR 63 Subpart QQQ
Primary Zinc Smelters	23.1(2)"n"	40 CFR 60 Subpart Q
Primary Lead Smelters	23.1(2)"o" and 23.1(4)"bt"	40 CFR 60 Subpart R 40 CFR 63 Subpart TTT
Primary Aluminum Reduction Plants	23.1(2)"p" and 23.1(4) "p" and "al"	40 CFR 60 Subpart S 40 CFR 63 Subpart LL
Beryllium	23.1(3)"b"	40 CFR 61 Subpart C
Beryllium Motor Rocket Firing	23.1(3)"c"	40 CFR 61 Subpart D
Inorganic arsenic emissions from arsenic trioxide and metallic arsenic production facilities	23.1(3)"h"	40 CFR 61 Subpart P
Inorganic arsenic emissions from primary copper smelters	23.1(3)"j"	40 CFR 61 Subpart O
Steel Pickling Plants	23.1(4)"bc"	40 CFR 63 Subpart CCC
Taconite Iron Ore Processing	23.1(4)"dr"	40 CFR 63 Subpart RRRRR
Primary Magnesium Refining	23.1(4)"dt"	40 CFR 63 Subpart TTTT
Secondary Lead Smelting	23.1(2)"h" 23.1(4)"x"	40 CFR 61 L 40 CFR 63 X
Petroleum Production (rescind current adoptions and not adopting new amendments)	23.1(2)"g" and 23.1(4) "ac"	40 CFR 60 J (rescind) and Ja (not adopting) and 40 CFR 63 CC (rescind)
Ship Building & Ship Repair	23.1(4)"ai"	40 CFR 63 II
Polyvinyl Chloride (PVC) and Copolymers (rescind current adoption and not adopting new amendments)	23.1(4)"j"	40 CFR 63 DDDDDD & HHHHHH

**Administrative Rules
JOBS IMPACT STATEMENT**

1. BACKGROUND INFORMATION

Agency:	Environmental Protection Commission (Commission) / Department of Natural Resources (Department)
IAC Citation:	567 IAC Chapters 20, 22, 23, 25, 31 and 33
Agency Contact:	Christine Paulson (515) 725-9510
Statutory Authority:	Iowa Code section 455B.133 and United States Clean Air Act (CAA) Title I (Sections 111 (42 USC §7411) and 112 (42 USC §7412))
Objective:	The purpose of the air quality rulemaking is to rescind unnecessary rules and to update other rules to reduce regulatory requirements. The rules rescinding the Voluntary Operating Permit Program fulfill the recommendations of an Executive Order 80 workgroup. The rules rescinding conditional permits implements the requirements of Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014). The rulemaking also implements a portion of the Department's 5-year rules review plan.
Summary:	<p>The Commission is rescinding the following air quality rules:</p> <ol style="list-style-type: none"> 1) Voluntary Operating Permit (VOP) program; 2) Conditional permits; 3) Adoption by reference of several federal air toxic and new source performance standards that do not apply to any Iowa sources; and 4) References to air quality forms that no longer exist or are explained elsewhere in rule. <p>The Commission is also adopting two rule updates to reduce regulatory requirements, as follows:</p> <ol style="list-style-type: none"> 1) Sunset the requirements for testing and monitoring of mercury emissions that are being addressed by federal regulations; and 2) Remove several compounds from the definition of volatile organic compounds (VOC) to match recent federal amendments. <p><u>Rescission of VOP program</u></p> <p>The Department originally developed the VOP program in the mid-1990's to assist facilities that wanted to take voluntary limitations on emissions and operations to avoid having to obtain a federal Title V operating permit. The Voluntary Operating Permit (VOP) Executive Order (EO) 80 stakeholder group recommended that the Department work individually with each of the VOP facilities to assist the affected facilities in utilizing other existing permitting options that meet the needs of the facility and the Department. The stakeholder group recommended to the Commission to rescind the rules with a target date of December 31, 2014.</p>

Eighteen facilities that had previously used the VOP program to establish limits to stay out of the Title V program have been transitioned over to other permitting options. This change reduced the regulatory burden for these facilities by eliminating the five-year renewal VOP requirement, thus saving the time to draft and submit the comprehensive VOP application. Since the VOP program is no longer in use, the VOP rules are being rescinded.

Rescission of conditional permits program

Conditional permits were added to the Iowa Code in the 1970's to facilitate electric utility rate setting. The Iowa Utilities Board changed the rate setting requirements so that conditional permits were not needed. The Department has no record of issuing a conditional permit to an electric utility. Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014) removed the statutory authority for conditional permits. The rule change rescinds conditional permit references that are no longer supported by statutory authority.

Rescission of air toxics standards and new source performance standards

The Commission is rescinding adoption by reference of several federal air toxics standards (also known as National Emission Standards for Hazardous Air Pollutants or "NESHAP") and federal new source performance standards (NSPS). The rescissions affect industries such as mineral processing that do not currently operate in Iowa, and are unlikely to operate in Iowa in the future. If an affected facility should plan to locate to Iowa in the future, the Department will evaluate whether to request adoption of the standards at that time.

Sunsetting the mercury emissions testing and monitoring rule

The Commission previously adopted the mercury emissions testing monitoring rule in 2009 as temporary requirements until EPA finalized its mercury air toxics standards (MATS) for electric utility steam generating units (EGUs). EPA has now finalized MATS, which includes mercury emissions standards and monitoring requirements. The state mercury rule is duplicative of the MATS requirements and is no longer needed.

The Commission is adopting a sunset date for the mercury rule. If a facility receives an extension to comply with MATS, the rule requires that the facility continue to comply with the mercury emissions testing and monitoring rule until the date the facility is required to comply with MATS, or, alternatively, is no longer subject to MATS compliance requirements.

Removing compounds from the list of volatile organic compounds (VOC)

EPA revised the definition of VOC to exclude several compounds because the compounds make a negligible contribution to tropospheric ozone

	<p>formation. The Commission is adopting EPA’s revisions so that facilities no longer need to count the excluded compounds towards potential VOC emissions in air permit applications and emissions inventory calculations and reporting.</p> <p><u>Rescission of a rule for air quality forms in Chapter 20</u> Rule 567 IAC 20.3 includes names and descriptions of the Department’s air quality forms. The Commission is eliminating this rule because some of the forms are no longer in use, and other forms are referenced elsewhere in the air quality rules.</p>
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2. JOB IMPACT ANALYSIS

<input type="checkbox"/> <i>Fill in this box if impact meets these criteria:</i>
<input type="checkbox"/> No Job Impact on private sector jobs and employment opportunities in the State.
<input type="checkbox"/> Job Impact cannot be determined.

<p><input checked="" type="checkbox"/> <i>Fill in this box if impact meets either of these criteria:</i></p> <p><input checked="" type="checkbox"/> Positive Job Impact on private sector jobs and employment opportunities in the State. <input type="checkbox"/> Negative Job Impact on private sector jobs and employment opportunities in the State.</p> <p><i>Description and quantification of the nature of the impact the proposed rule will have on private sector jobs and employment opportunities:</i></p> <p>The Department has determined that the rules will have a positive impact on private sector jobs.</p> <p><u>Rescission of VOP program rules</u> Businesses with a VOP permit are required to renew the application every five years. The VOP application includes all emissions in the facility and takes a considerable amount of time to complete. The rule changes will reduce the regulatory burden for businesses by eliminating the five-year renewal requirement, thus saving the time to draft and submit the comprehensive application.</p> <p><u>Rescission of conditional permits</u> Rescinding the rules for conditional permits will have no impact on jobs because the Department has no record of issuing a conditional permit to an electric utility. However, rescinding these obsolete rules should benefit the regulated community and the public by providing them with up-to-date air quality requirements.</p> <p><u>Rescission of NESHAP and NSPS</u> Iowa currently has no industries affected by the 15 standards being rescinded, and these requirements are unlikely to affect any Iowa facilities in the future. Rescinding these standards will streamline state air quality rules and will have a positive impact on regulated entities that use</p>
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the Department's air quality rules.

Sunsetting the mercury emissions testing and monitoring rule

The sunset date for the mercury emissions testing and monitoring rule will have a positive impact on affected facilities by eliminating potentially duplicative and expensive testing and monitoring requirements.

Removing compounds from the list of VOCs

Adopting EPA's revisions to remove compounds from being considered VOCs will have a positive impact on facilities because the excluded compounds no longer need to be included in potential emissions in air permit applications and emissions inventory calculations and reporting.

Rescission of a rule identifying air quality forms

Removing this rule will benefit the regulated community and the public by providing current and non-duplicative references to air quality forms.

Categories of jobs and employment opportunities that are affected by the proposed rule:

VOP permits were held by 18 different types of industry, ranging from auto body shops to municipal utilities. These facilities were able to utilize a variety of options, such as exemptions, construction permitting, and other applicable rules to transition out of the VOP program. No other jobs or employment opportunities would be affected by the proposed rule rescissions and updates.

Number of jobs or potential job opportunities:

Cannot be determined at this time.

Regions of the state affected:

All regions of the state.

Additional costs to the employer per employee due to the proposed rule: (if not possible to determine, write "Not Possible to Determine.")

No additional costs to the employer.

3. COST-BENEFIT ANALYSIS

The Agency has taken steps to minimize the adverse impact on jobs and the development of new employment opportunities before proposing a rule. See the following Cost-Benefit Analysis:

No other less intrusive or expensive method exists for achieving the purpose of the rule changes.

Rescinding rules for the VOP program, as recommended by the VOP EO80 stakeholder group, is the most cost efficient approach. Facilities have been able to utilize less intensive permitting programs, were able to use permit exemptions to transition out of the VOP program, or were no longer operating.

The conditional permits rules no longer have statutory authority (SF 2197) and are being removed as part of the 5-year rules review required in Iowa Code section 17A.7(2).

Removing or updating the rules will make rules more accessible and understandable to the public.

Administrative Rule Fiscal Impact Statement

Date: February 2, 2015

Agency: Environmental Protection Commission (Commission) / Department of Natural Resources (Department)

IAC Citation: 567 IAC Chapters 20, 22, 23, 25, 31 and 33

Agency Contact: Christine Paulson

Summary of the Rule:

The Commission **rescinds** the following air quality rules:

- 1) Voluntary Operating Permit (VOP) program;
- 2) Conditional permits;
- 3) Adoption by reference of several federal air toxic and new source performance standards that do not apply to any Iowa sources; and
- 4) References to air quality forms that no longer exist or are explained elsewhere in rule.

The Commission is also adopting two rule **updates** to reduce regulatory requirements, as follows:

- 1) Sunset the requirements for testing and monitoring of mercury emissions that are being addresses by federal regulations; and
- 2) Remove several compounds from the definition of volatile organic compounds (VOC) to match recent federal amendments.

Fill in this box if the impact meets these criteria:

- No Fiscal Impact to the State.
 Fiscal Impact of less than \$100,000 annually or \$500,000 over 5 years.
 Fiscal Impact cannot be determined.

Brief Explanation:

The Department will use existing budget and resources to implement the rules.

Assumptions:

Describe how estimates were derived:

Estimated Impact to the State by Fiscal Year

Revenue by Each Source:	<u>Year 1 (FY 2015)</u>	<u>Year 2 (FY 2016)</u>
GENERAL FUND	0\$	0\$
FEDERAL FUNDS	0\$	0\$
Other (specify)	0\$	0\$

	_____	_____
	_____	_____
TOTAL REVENUE	0\$	0\$
Expenditures:		
GENERAL FUND	0\$	0\$
FEDERAL FUNDS	0\$	0\$
Other (specify)	0\$	0\$
	_____	_____
TOTAL EXPENDITURES	0\$	0\$

NET IMPACT

This rule is required by State law or Federal mandate.
Please identify the state or federal law:

Revoking the VOP rules implements the recommendation of the Executive Order (EO) 80 workgroup. The statutory authority for conditional permits rules was revoked in Senate File 2197 (2014). All of the rule changes will fulfill Iowa Code section 17A.7(2) by removing obsolete rules and updating other rules to reduce regulatory requirements.

Funding has been provided for the rule change.
Please identify the amount provided and the funding source:

Funding has not been provided for the rule.
Please explain how the agency will pay for the rule change:

The Department will utilize existing resources at this time.

Fiscal impact to persons affected by the rule):

Rescission of VOP program

The Department originally developed the VOP program in the mid-1990's to assist facilities that wanted to take voluntary limitations on emissions and operations to avoid having to obtain a federal Title V operating permit. The Voluntary Operating Permit (VOP) Executive Order 80 stakeholder group recommended that the Department work individually with each of the 18 VOP facilities to assist the affected facilities in utilizing other existing permitting options that meet the needs of the facility and the Department. Facilities that had previously used the VOP program to establish limits to stay out of the Title V program have now been transitioned over to other permitting options.

The rule changes will reduce the regulatory burden for businesses by eliminating the five-year VOP renewal requirement, thus saving the time to draft and submit the comprehensive application.

Rescission of conditional permits

Conditional permits were added to the Iowa Code in the 1970's to facilitate electric utility rate setting. The Iowa Utilities Board changed the rate setting requirements so that conditional permits were not needed. Senate File 2197 (85th General Assembly, signed by Governor Branstad on March 14, 2014) removed the statutory authority for conditional permits. The rule changes rescind conditional permit references that no longer are supported by statutory authority.

Rescinding the rules for conditional permits will have no fiscal impact because the Department has no record of issuing a conditional permit to an electric utility. However, rescinding these obsolete rules should benefit the regulated community and the public by providing them with up-to-date air quality requirements.

Rescission of air toxics standards and new source performance standards

The Commission is rescinding adoption by reference of several federal air toxics standards (also known as National Emission Standards for Hazardous Air Pollutants or "NESHAP") and federal new source performance standards (NSPS).

Iowa currently has no industries affected by these NESHAP and NSPS standards, and it is unlikely that these requirements will affect any Iowa facilities in the future. Rescinding these standards will streamline state air quality rules and will have a positive impact on regulated entities that use the Department's air quality rules.

(continued on next page)

Fiscal impact to persons affected by the rule (continued):

Sunsetting the requirements for mercury emissions testing and monitoring

The Commission adopted the mercury emissions testing monitoring rule in 2009 as temporary requirements until EPA finalized its mercury air toxics standards (MATS) for electric utility steam generating units (EGUs). EPA has now finalized MATS, which includes mercury emissions standards and monitoring requirements. The state rule is duplicative of the MATS requirements and is no longer needed. Sunsetting the rule requirements will have a positive fiscal impact on affected facilities by eliminating potentially duplicative and expensive testing and monitoring requirements.

Removing compounds from the list of VOCs

EPA revised the definition of VOC to exclude several compounds because the compounds make a negligible contribution to tropospheric ozone formation. Adopting the federal rule changes will have a positive impact on facilities because the excluded compounds no longer need to be included in potential emissions in air permit applications and emissions inventory calculations and reporting.

Rescission of a rule identifying air quality forms

Chapter 20 includes names and descriptions of the Department's air quality forms. The Commission is eliminating rule 567 IAC 20.3 because some of the forms included in the rule are no longer in use, and other forms in the rule are referenced elsewhere. Removing this rule will benefit the regulated community and the public by providing current and non-duplicative references to air quality forms.

Fiscal impact to Counties or other Local Governments (required by Iowa Code 25B.6):

Several municipalities had VOP permits for their municipal utilities. The Department worked with Estherville, McGregor, Rock Rapids and Spencer municipal utilities to transition their VOPs to construction permits.

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

9

DECISION

TOPIC

Contract Amendment – University of Iowa, Floodplain Mapping

Recommendation:

The Department requests Commission approval of amendment number 3 to contract number ESD7385SRALST100332. This amendment would change the not-to-exceed total amount of the contract from \$10,000,000 to \$12,500,000

Funding Source:

The source of funding for this Contract Amendment is a Federal appropriation from the CDBG program as outlined in Public Law 110-329 and administered by the Iowa Economic Development Authority.

Background:

The Department received a Community Development Block Grant for \$15,000,000 to develop floodplain maps across the state. Originally, \$10,000,000 of these funds were obligated to the University of Iowa's Iowa Flood Center (IFC). Due to the excellent quality and value of the floodplain mapping services received to date, the Department wishes to extend the amount of work performed by the IFC.

Purpose:

The purpose of this amendment is to modify the not-to-exceed total contract amount from \$10,000,000 to \$12,500,000.

Scope of Work:

This amendment does not alter the original contract Scope of Work.

Chris Ensminger, GIS Section Supervisor
GIS Section, Land Quality Bureau
Environmental Services Division

1/26/2015

Attachment 1 – Proposed Amendment 3

This Contract Amendment is entered into between the Iowa Department of Natural Resources (DNR) and The University of Iowa (Contractor). The parties agree as follows:

Section 1 STATEMENT OF PURPOSE

1.1 Purpose. The purpose of the Contract Amendment is to: Increase the Not-to-exceed total amount of contract from \$10,000,000 to \$12,500,000.

Section 2 DURATION OF CONTRACT AMENDMENT

2.1 Term of Contract Amendment. The term of this Contract Amendment shall be from February 12, 2015 through December 31, 2016 unless terminated earlier in accordance with the Termination section of the Original Contract. However, this Contract Amendment shall not begin until it has been signed by both parties.

Section 3 CONTRACT AMENDMENT STATEMENT OF WORK

3.1 Statement of Work. This amendment does not change the Statement of Work

Section 4 COMPENSATION

4.1 Source of Funding. The source of funding for this Contract Amendment is a Federal appropriation from the CDBG program as outlined in Public Law 110-329 and administered by the Iowa Economic Development Authority.

4.2 Not-to-exceed total amount of contract.

This amendment changes the original contracted not-to-exceed amount of \$ 10,000,000 to \$12,500,000.

Section 5 OTHER AMENDMENT PROVISIONS

No other amendment provisions are included in this amendment.

Section 6 EFFECT OF AMENDMENT ON ORIGINAL AGREEMENT PROVISIONS

All provisions of the Original Contract shall remain in full force and effect unless specifically changed by this Contract Amendment.

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

10

DECISION

TOPIC

Groundwater Status Report

The Iowa Department of Natural Resources (DNR) is providing this report in fulfillment of Section 455B.263(1) of the Iowa Code, which states:

The commission shall deliver to the general assembly by January 15, 1987, a plan embodying a general groundwater protection strategy for this state which considers the effects of potential sources of groundwater contaminations on groundwater quality. The plan shall evaluate the ability of existing laws and programs to protect groundwater quality and recommend any necessary additional or alternative laws and programs. The department shall develop the plan with the assistance of and in consultation with representatives of agriculture, industry, and public and other interests. **The commission shall report to the general assembly on the status and implementation of the plan on a biennial basis.** This section does not preclude the implementation of existing or new laws or programs which may protect groundwater quality.

This report is intended to serve as the current report on the status of groundwater in Iowa. It focuses on the water supply, or “water quantity” work of the DNR and its partners, and briefly summarizes the status of Iowa’s groundwater supplies. It also summarizes a review of DNR water allocation policy.

The Department seeks approval of the Commission to submit the report.

Bob Libra, State Geologist
Environmental Services Division

GROUNDWATER STATUS REPORT

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Background: The 2007 Strategy for Managing Iowa’s Water Resources

Accurate and up-to-date information about the quality and quantity of Iowa’s water resources is vital to the State’s ability to meet the needs of its citizens, and to sustain the ecological functions of streams fed by groundwater, especially during droughts. It is critical to attracting industries with large water demands that need assurance the well won’t run dry. A review conducted in 2007 concluded that Iowa’s knowledge base and tool-box for assessing groundwater was inadequate and out-of-date. *Aquifer Characterization* studies, which integrate information such as hydrologic properties, response to pumping, and groundwater levels with the physical geologic framework of key units had not been updated for 20-40 years, and new tools, such as *Predictive Models*, had not been developed. The Water Allocation program, charged with reviewing requests for water use permits, was inadequately funded, and could provide only cursory review of many permits. Permit fees for water use had remained at \$25 for 10 years. There were limited resources for acquisition of new information, such as aquifer tests or strategic monitoring wells. Groundwater level monitoring had ended, because of budget constraints. While there were concerns about the effects of long-term pumping on our deep aquifers, and the adequacy of our shallow aquifer-stream systems to meet increased demands during drought, the state was lacking in the information and methods needed to assess the risks or provide guidance to avoid them. Iowa also lacked the database capabilities to efficiently bring together available groundwater data, a fact that slowed and sometimes limited our assessment of groundwater. In response to this review, DNR and a group of partners and water interests developed a Strategy for the Management of Iowa’s Water Resources in 2007. The development of the strategy occurred over a six month period. As completed, the strategy identified 4 goals and 9 actions to meet the goals. In summary, these are:

Goal 1: Characterize Iowa’s surface and groundwater resource availability, quality, use, and sustainability.

Actions:

- Characterization of water resources - The characterization of Iowa’s water resources requires analysis of geologic materials and data from wells to establish the 3-dimensional physical map of geologic units for the state. For shallow aquifers this will also require characterization of the stream-aquifer systems that carry water, their low-flow characteristics, and interactions between precipitation, surface water, and groundwater.
- Targeted water resource data collection – Collect detailed information, such as test drilling, geophysical profiles, pump tests and water level responses, and groundwater quality and age determinations, where necessary.
- Groundwater level measurements – Quarterly-to-continuous measurements at ~300 wells distributed state-wide.
- Increased stream gauge locations – There are currently about 130 stream gauges in operation in Iowa. To address low-flow information needs, construct and operate 12 additional stream gauge locations.
- Maintenance of aquifer characteristics – Information on the geology and water yielding potential of our aquifers continues to grow. New information must be collected and entered into a database as it becomes available, allowing for up-to-date characterizations.

Goal 2: Identify and estimate water use and the impact on water sources.

Actions:

- Develop predictive models – Water use can be estimated from permit records, although it was realized database improvements were needed. Predictive models take current or estimated future water use, along with aquifer characterizations, and can forecast aquifer impacts into the future – an ability to allow sustainable allocations.
- Maintenance of predictive models - As characterizations, water use estimates, and water level information are updated, models must also be updated.

Goal 3: Make necessary policy recommendations for the sustainable use of Iowa’s water resources.

Action:

- Policy review - Working with stakeholders and technical partners, a review of existing authorities and policy will be conducted as they relate to water use and allocation.

Goal 4: Implement a comprehensive, real-time water resource permitting, management, and development system.

Action:

- Water allocation permitting - The products of the other goals/actions will be utilized by the water allocation program to improve water use permitting, both in quality of

reviews and in process time. Additional staff is needed to more adequately review the permitting of agricultural drainage wells, and aquifer storage and recovery. Planning activities, such as water conservation planning and implementation, review and update of emergency procedures and drought plans need a more proactive approach by the DNR.

The 2007 strategy was broad and ambitious. The estimated cost of the work was \$3M annually, about the cost of supplying each resident of the state one bottled water each year, a modest price to assure sustained and dependable water supplies for Iowa's communities, businesses, and farms. Funding for the work was less than one-third of that planned. Funding includes \$495,000 annually in Environment First funds, and increased fees for water allocation permits, with the Water Allocation program allowed to keep up to \$500,000 in fees annually to run the program; fees have typically raised about \$350,000 per year.

What was accomplished: 2007 – 2014

While full funding for the actions outlined in the strategy was not obtained, significant resources were made available for addressing the state's water supply needs. These include:

--Aquifer studies and/or models – The main efforts conducted with funding from Environment First appropriations have been the geologic characterization of major aquifers, and the development of predictive models for those with sufficient data. The aquifers that were addressed and dates the work was done are:

Aquifers that were modeled:

- Dakota Sandstone - NW Iowa – 2008
- Jordan Aquifer - Statewide – 2009
- West Nishnabotna alluvial-stream system – 2010
- Des Moines alluvial-stream system - Palo Alto Co – 2011
- Silurian Aquifer – EC Iowa – 2011
- Mississippian Aquifer - NC Iowa – 2012-3
- Lower Raccoon River – alluvial-stream system – 2013

In addition, the model for the critical Jordan Aquifer was updated in 2013. The initial work on the Jordan indicated significant and increasing water level declines in several locales, resulting in a more focused analysis and an update to the model.

Aquifers that were studied but not modeled:

- Rock River alluvial-stream system – 2012-3
- Floyd River alluvial-stream system – 2012-3
- Ocheyan River alluvial-stream system – 2014
- WC and SW IA – Dakota and buried sand and gravel aquifers: exploration and initial characterization – 2015

--Database Integration

Bringing together data from different sources and databases is key for the water supply industry and DNR staff in assessing groundwater and making efficient, sound decisions when developing groundwater. Many databases hold information, the legacy of individual state and federal programs needing their own system in the past. While resources were not

specifically allocated to this task, several key databases now “speak to each other” in a significantly improved fashion. These include SDWIS, the EPA Safe Drinking Water Act database; GEOSAM, the Iowa Geological Survey geologic and well database, and Public Wells, DNR-Water Supply’s database of all public water wells. In addition progress has been made in connecting the Water Use database to the others as well.

--Water Allocation program

–Legislation was also passed to allow increased fees for water use permits, with the fees dedicated to the Water Allocation program (total not to exceed \$500,000). Typically the amount collected by fees has been about \$350,000. In addition to adding resources to more fully and efficiently review water use requests, the funds have been used to develop a water use database. While a water use database has been in existence since the 1970’s, upgrades were initiated as a result of external stakeholder process review and requests. The application was moved to production on September 20, 2011. A further phase of the project is underway. Various process improvements for permitting, reporting, and fee collection, affecting approximately 4,000 permittees, have been made. These improvements will create time and money savings for both permittees and DNR staff. Improvements include:

- Electronic submittal of yearly usage reports.
- Incorporation of hydrogeologic reports.
- Minimization of manual paper/digitization processes to allow permittees to enter on-line information in an edited format thereby improving data quality.
- Streamlining workflow and data processes.
- Facilitation of the passage of information electronically to and from the general public, permittees, industry members, organizations, government agencies, DNR field and central office staff, politicians, etc. in a timely manner.
- Public access 24/7 to permit information.
- Improvement in data integrity.

In addition, the Aquifer studies and models funded by the Environment First appropriation have been used to improve the permit, planning, and conflict resolution process for both the allocation program and the regulated community.

--Policy Review – DNR staff and a group of external technical experts and water interests reviewed and made recommendations for changes to DNR’s water allocation rules and policies in 2010. This is discussed at the end of this section.

Service to Iowans.

The water quantity program over the last 8 years has produced significant benefits to the people of the state. Dozens of communities and industries have requested model simulations of planned groundwater development or expansion, to assure their plans will deliver the needed water well into the future. Water disputes have been investigated and typically resolved to the satisfaction of all parties. And when the drought of 2012-3 settled into western Iowa, which is characterized by shallow, drought-susceptible aquifers, program staff and products assisted numerous communities and rural water districts to make ends meet.

A major outcome of the program was to bring focus to water-level declines within the Jordan Aquifer, particularly in high-use areas such as Linn, Johnson, and Webster counties. Rules for water-level declines for the Jordan have been in place since the 1970's; while these rules did place limits of declines, they were based on the science at the time, and contained language making their use problematic. The new information and model approaches allowed for various future water-use scenarios to be evaluated, as well as the effects of possible rule changes on current users. A reasonable approach was developed with stakeholders, one that allows Jordan users to readily assess their status with respect to allowable declines. It is anticipated these rules will be finalized and go into effect during 2015.

What is Yet to be Done

Specific items identified in the 2007 strategy but that have not been accomplished include: **Aquifer Characterization and Modeling.** A variety of aquifers have yet to be assessed. These include, but are not limited to:

--Shallow-rock aquifers in eastern Iowa. These are productive units, often with varying degrees of karst development. They are important water sources and major contributors to stream baseflow, and typically are very vulnerable to contamination. The fractured nature of the rocks and presence of karst development suggests these aquifers are more likely candidates for hydrogeologic characterization rather than regional modeling. They include:

- Devonian-age carbonate strata in north-central Iowa, including the upper Cedar River Watershed.
- Silurian carbonate strata in eastern Iowa (outside of the original model area).
- Cambro-Ordovician carbonate and sandstone strata in northeast Iowa (outside the original model area).
- Mississippian carbonates in southeast Iowa (outside the original model area).

--Unstudied Alluvial Aquifers. Many alluvial systems, particularly in western Iowa, where they are often the only currently-predictable local sources of groundwater, have yet to be assessed or modeled. Those with the greatest drought susceptibility are logical priorities. An additional unstudied aquifer is the Missouri River alluvium, a thick and highly productive sand and gravel sequence underlying the broad Missouri floodplain. This aquifer represents a water source which may significantly increase in importance to western Iowa. Similarly an assessment of the Mississippi River alluvium would also be of value. Other western Iowa alluvial systems would include:

1. Little Sioux River alluvium (south of Spencer)
2. Boyer River alluvium
3. East Nishnabotna River alluvium
4. Big Sioux River alluvium

Targeted Water Resource Investigations are not funded. Aquifer assessments and updates benefit from targeted data collection, including pump tests at critical locations, the construction of observation wells, in-depth geologic analysis, and groundwater age-dating. These work items, focused where existing data is lacking, add key details to the aquifer studies. The program has partnered with other state and federal programs to accomplish

these tasks. Source Water Protection and Geologic Mapping programs are key examples of this leveraging of resources.

Groundwater Level Monitoring. There has not been funding allotted to re-establish groundwater level monitoring. Staff efforts have accomplished occasional rounds of level monitoring, but not with the frequency desired. Ongoing tracking of water levels in aquifers is a needed component to assess the accuracy of model assessments and identify problem areas. The recent drought has raised the need to expand this concept to include water table and soil moisture monitoring to a groundwater level network, which would also act as an early warning system for floods.

Maintenance of Aquifer Characteristics and Models. Additional funds were not allocated to more efficiently process well sample materials and logs and update databases. One model has been updated and others will need to be in the near future.

Water Use Estimates by Aquifer and Use Sector. A significant gap in the information gathering has been the lack of resources to assess groundwater use by aquifer and by use type (i.e., municipal, industrial, irrigation, power generation).

Status of Iowa's Groundwater

The results of aquifer studies, models, and trends in allocation and drought-related problems help to define the current status of our groundwater resource from a quantity point of view.

Highlights include:

- As mentioned, water level declines into the future have been forecast into the future for the Jordan Aquifer, prompting a re-write of the rules for the aquifer. The areas of major use and declines include Webster and Linn-Johnson counties. However significant withdrawals also occur around the Mason City, Clinton, and Des Moines areas.
- The Silurian Aquifer is widely used in east-central Iowa. Currently groundwater level declines are a major issue in Johnson County, where the city of Coralville and nearby quarries are pumping significant volumes and causing issues for the Coralville supply. While the area of declines and water use conflicts for the Silurian are currently quite localized, the Silurian is an obvious “replacement” aquifer for Jordan aquifer users in Linn and Johnson counties. As water levels in the Jordan decline and approach regulatory limits, use may transfer to the Silurian, and result in more widespread water quantity conflicts in the future.
- Models and forecasts for the Dakota Aquifer in northwest Iowa and the Mississippian Aquifer in north-central Iowa indicate only localized potential for larger water-level declines. Unless significant increases in groundwater use occur (such as widespread irrigation) no major issues are anticipated.
- A major area of concern is western Iowa, which is reliant on drought-susceptible shallow alluvial-stream system aquifers. The natural susceptibility to drought problems in this area has been exacerbated by the increased demands for water from concentrated livestock operations. In particular, many livestock operations rely on

Rural Water Systems (RWS) for their water supply, and during the recent drought some RWS struggled to meet the peak demands, particularly during extended hot spells.

Policy Review

DNR staff and a group of external technical experts and water interests reviewed and made recommendations for changes to DNR's water allocation rules and policies. This review, "Water Rights and Allocation", was completed in 2010 and is available at: <http://www.iowadnr.gov/Environment/WaterQuality/IowaWaterPlan.aspx> As many of the recommendations would require significant staff time and resources, there has been no action taken on many of the recommendations to date. In 2014 DNR management and water allocation staff reviewed the recommendations and developed a basic prioritization of the recommendations. The original recommendations and their status following the 2014 review are listed below.

- 1) Maintain the DNR's authority and principles of water management established by the current Code of Iowa.

This recommendation was a general confirmation of support for current code authority and the scope and direction of Iowa's water allocation program.

- **Status: Accomplished.**

- 2) Add a definition of sustainability to the Iowa Administrative Code (567 Iowa Administrative Code (IAC) 50.2) as a guiding principle of resource management.

The 2014 review found little compelling reason for this change, given current code language.

- **Status: No action needed**

- 3) Establish rules that define water allocation priorities to guide the allocation process patterned after the existing drought rules.

Currently there are no priorities for actual allocations, although the drought priorities function as such. It was recommended that the current drought priorities with minor modification would best serve this purpose. This recommendation also would add private wells and water-fed ecosystems to the allocation considerations, given that springs, wetlands, coldwater streams and other ecosystems don't have the option of finding an alternative water source.

- **Status: Allocation priorities should be developed.**

- 4) Change emergency shortage priorities listed in 567 IAC 52.10(3) to potentially exclude water conveyed across state boundaries, and to include the use of water for open loop (geothermal) heating and cooling and for the irrigation of any specialty crop including tee and green areas of golf courses.

Only minor changes to the existing priorities were recommended.

- **Status: Low priority for action.**

- 5) Encourage local responses to water shortages by requiring public water supplies to include provisions for restricting consumptive water use in their emergency conservation plans to be implemented during transient drought and water shortage conditions.

Most public water supplies have such conservation plans. DNR currently lacks staff and resources to evaluate or review the plans.

- **Status: Deserves further review and consideration.**

- 6) Promote water conservation. The committee recognized that the need for formalized water allocation can be minimized by increasing voluntary long-term water conservation which will require active engagement of a wide variety of partners.

Water conservation is as obvious tool in water supply management, and promoting it is inherent in water allocation. Promoting long-term, ongoing conservation would be difficult with “water rich” supplies, as they perceive little benefit. More effective conservation efforts would require increased staff and resources.

- **Status: Deserves further consideration.**

- 7) Improve the effectiveness of “Protected Flow” management by convening a scientific panel to assess statistical methods of evaluating flows, review flow thresholds given recent biological research, consider expanding flow thresholds to additional water resources, draft potential rule amendments, and make recommendations for implementing enforcement.

There are many reasons to take a look at protected flows. There are many natural resource, ecosystem, and aquatic life implications, and greatly increased knowledge of them over the last 50 years. Further, we know a number of things have changed since the protected flows were first set. Stream low flows have generally increased, and wastewater treatment has improved. At the same time, stream water quality standards have tightened. This all has implications for protected low-flows

- **Status: Deserves internal technical review.**

- 8) Explore the use of “Protected Water Source” designations to better protect resources such as springs, fens, coldwater streams, wetlands or other water bodies that could be threatened by nearby water development.

Protected Water Source designation would be a potent tool for water body protection, but it is also an intensive process to undertake. Protection for water bodies might be more readily achieved under recommendation 3, incorporating protections into the allocation process.

- **Status: No further action.**

- 9) Draft changes to 567 IAC Chapter 52 so that all open-loop geothermal heating-cooling systems requiring permits will re-inject, unless it is determined by the DNR

that sustainability of the resource is protected with the use of a discharging open-loop system.

- **Status: This has been implemented using existing authority.**

- 10) Develop an internal committee to consider to the issue of injecting waters into aquifers for various purposes and to develop coherent policy.

Iowa has fairly strict rules regarding injection of waste or pollutants into groundwater. There has been little impetus to change this, although stricter stream discharge rules could change that. There are deep groundwater zones in the state with poor natural water quality where some kinds of injection could be accomplished with little risk to the resource. The recommendation was to study the issue internally to assess the feasibility and interest.

- **Status: Needs Discussion.**

- 11) Further examine issues of interbasin transfers and interstate transfers and formulate policy. Iowa needs to define the State's interests and beneficial uses for Missouri River waters.

There are a variety of water transfer issues that state has no policies on; these should be examined. A priority for the long-term is the Missouri River, and what upstream diversions from the River means for Iowa's water interests. The relationship between the Missouri alluvial aquifer and stream flows is a key consideration.

- **Status: Needs Study**

SUMMARY

This report briefly summarizes the status of our groundwater in terms of quantity, and the DNR's water-quantity related activities over the past 8 years. If current appropriation levels continue, we anticipate continuing the study and model development for 1-2 major unstudied aquifers each fiscal year. In addition, some of the earlier studies will be assessed for the need for updates. It is anticipated updates will be needed.

Developing a groundwater level monitoring network and a process for routinely generating water-use estimates by aquifer and use sector remain priorities that would require additional resources to properly implement.

The Water Allocation program will continue the refinement of the Water Use database and its integration with other data-holding programs.

Further action on items identified in the Policy Review remains under discussion within the DNR. Some of the recommendations, while viewed useful for managing the resource, would require relatively significant staff time and resources to develop and implement, and their value must be weighed against other DNR priorities and resource constraints.

Annual Report Of the State Geologist



Robert D. Libra
State Geologist of Iowa
Iowa Department of Natural Resources

Iowa Geological Survey
IIHR-Hydroscience and Engineering
University of Iowa

February 2015



Iowa Geological Survey

What we do: Since 1892, the Iowa Geological Survey (IGS) has provided earth, water, and mapping science to all Iowans. We collect and interpret information on subsurface geologic conditions, groundwater and surface water quantity and quality, and the natural and built features of our landscape. This information is critical for:

- Predicting the future availability of economic water supplies and mineral resources.
- Assuring proper function of waste disposal facilities.
- Delineation of geologic hazards that may jeopardize property and public safety.
- Assessing trends and providing protection of water quality and soil resources.
- Applied technical assistance for economic development and environmental stewardship.

Our goal: Providing the tools for good decision making to assure the long-term vitality of Iowa's communities, businesses, and quality of life. Information and technical assistance are provided through web-based databases, Geographic Information System (GIS) tools, predictive groundwater models, and watershed assessments. The key service we provide is direct assistance from our technical staff, working with Iowans to overcome real-world challenges. This report describes the basic functions of IGS and highlights major activities and accomplishments during calendar year 2014.

IGS Status

Re-organization within the Iowa DNR resulted in many of the geologic and groundwater-related functions of the former Iowa Geological and Water Survey Bureau being moved contractually to IIHR-Hydroscience and Engineering at the University of Iowa. The contract with DNR supplies about \$1M annually to carry out geologic mapping, aquifer characterization and modeling, operating the IGS Geologic Data Repository, maintaining the geologic and well database GEOSAM, and providing information and technical assistance to DNR and the public. The contract has a five-year duration; however IGS may be more formally established as an entity within IIHR at an earlier date. The State Geologist's position, by code, remains with the DNR until code changes occur. The State Geologist manages the contract with IIHR on behalf of the Department.

IGS Rock Library and Geologic Data Repository

IGS maintains a collection called the “Rock Library” that is the primary resource for understanding Iowa geology. The library includes well cuttings (rock fragments) from over 39,000 sites around the state, well core (continuous cylinders of rock) samples from over 1,700 sites, and rock samples collected at quarries and natural exposures by IGS geologists. The cuttings and core collection is the result of decades of cooperative work with well drillers, mineral and energy exploration companies, and consulting firms.

The Rock Library data has numerous applications that cover a broad spectrum of topics, from mineral exploration to identification of geologic hazards. The data is routinely used in well forecasts, which evaluate the groundwater quantity and quality for any location in the state. The data is a valuable input to groundwater models that evaluate the amount of groundwater available in an aquifer. The Cambrian-Ordovician and Dakota aquifers are examples that have been modeled to determine the amount of water available. Researchers continue to access the Rock Library to further their scientific investigations. A researcher working on issues related to frac-sand mining recently sampled some core for analysis. Non-geologist benefit from the Rock Library as well. A filmmaker creating a geologic scene in a movie used Rock Library materials!



The IGS Rock Library and Geologic Data Repository, UI Oakdale Campus.

The Rock Library represents an irreplaceable resource for the citizens of Iowa, with an estimated replacement value of \$250 million. This wealth of geologic information will continue to grow as new samples become available, and IGS geologists will continue to prepare, preserve, and study these materials to make the information and interpretations available to all Iowans.

GEOSAM

GEOSAM is a popular web application that offers users access to a wide range of geologic data, including information collected by well drillers. In June, a SQL injection attack forced the Dept. of Natural Resources to shut down GEOSAM. In response, IGS re-wrote GEOSAM to fix security vulnerabilities in the old program and to optimize performance on University of Iowa servers. IGS rapidly deployed a Google Map application to allow users continued access to geologic data while they rewrote the applications.



GEOSAM contains well and geologic data from across Iowa

The IGS released the latest version of GeoSam (version 1.0) in November. GeoSam uses several different and the most up to date technologies, making it less susceptible to unwanted attacks. GeoSam uses PHP for scripting, MySQL for information storage, and Google Fusion Tables for processing power and geolocation. GeoSam is also equipped with Google Analytics, which allows the tracking and monitoring of site usage to customize it to fit user's needs.

The new GeoSam is a significant improvement over the previous version. The new GeoSam retained the search capabilities of the previous system. But, the new GeoSam allows users to search the database using either a map- or text-based interface. Users are also allowed to perform complex searches on multiple fields to find their data easier. Several new features were incorporated into GeoSAM. One feature allows users to save search results as "KML" files, which can be opened in Google Earth or imported into ESRI's ArcGIS. Feedback from major users, including DNR and other state agency staff, well drillers, environmental and water supply consultants, and the mining industry, have been positive. Further improvements to GEOSAM and integration with other subsurface databases is in the planning stage.

User statistics for the first six weeks following the launch of the new GeoSam are informative. Visitors to GeoSam originated in 34 different states, and from 94 cities spread across Iowa. During the period there were 900 unique users. Daily visits increased across the period from 50 to over 70 day, with many more visits on weekdays. About 5% of the visits came from mobile devices.

Geologic Mapping

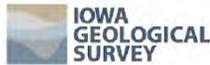
Geologic mapping in Iowa is conducted by IGS in conjunction with the USGS National Geologic Mapping program (STATEMAP). Mapping is guided by an advisory committee of public and private interests and is funded by a 50-50 matching federal grant. The IGS received \$173,488 from STATEMAP to map both the bedrock and surficial geology of four quadrangles at 1:24,000 scale in north-central Iowa (Cerro Gordo, Mitchell, and Floyd counties). Mapping the surficial and bedrock geology in the same area at the same time is an efficient use of resources and allows mappers to utilize each other's data, especially in counties with extensive shallow rock areas like Cerro Gordo and Mitchell. All maps were produced using ArcMAP and will be available as both pdfs on the IGS publications website and as shapefiles on the Iowa Department of Natural Resources NRGIS library. All deliverables were submitted to USGS on September 24, 2014.

This year's maps were part of the Impaired Watershed and Developing Areas mapping initiatives of the IGS, completing the second phase of a multi-year program to map critical areas in the Upper Cedar River Watershed. The Mason City and Nora Springs quadrangle maps represented the second phase of a three-year program to map all of Cerro Gordo County. The St. Ansgar and Osage quadrangles were phase one of a multi-year program to map all of Mitchell County. A renewed focus on the Cedar River Basin followed catastrophic flooding in 2008, as several cities and developing areas are located in this basin. In addition, productive bedrock aquifers in the watershed provide important water supplies, and are significant suppliers of stream baseflow. Many new partners are concentrating efforts on water supply, water quantity and quality, land-use planning, and flood protection studies. Geologic mapping is crucial and foundational for many of these studies, and the project enjoys wide support from the Iowa-Cedar Watershed Interagency Coordination Team and the Cedar River Watershed coalition. Bedrock mapping subdivided the Cedar Valley Group into four formations which provided more detailed geologic information. The mapping and geologic analysis is also assisting the Cerro Gordo County Department of Public Health Department to identify the geologic source of elevated arsenic in groundwater, and provide guidance for groundwater users to avoid arsenic.

The recent mapping in the Upper Cedar basin is shedding new light on Iowa's glacial history. Deposits of the Mid-Wisconsin Sheldon Creek Formation have been delineated below and to the east of the Des Moines Lobe, which marks the last glacial advance in Iowa. This means glacial ice, and ultimately meltwater, interacted with the bedrock surface and underlying aquifers in place previously unknown. In addition, significant sand and gravel resources are present in close proximity to the Des Moines Lobe margin, and mapping has further delineated and characterized these materials. Combining the bedrock and surficial map information is allowing stakeholders to address key questions related to shallow rock areas, aggregate resource potential, and groundwater vulnerability.



Association of American State Geologists



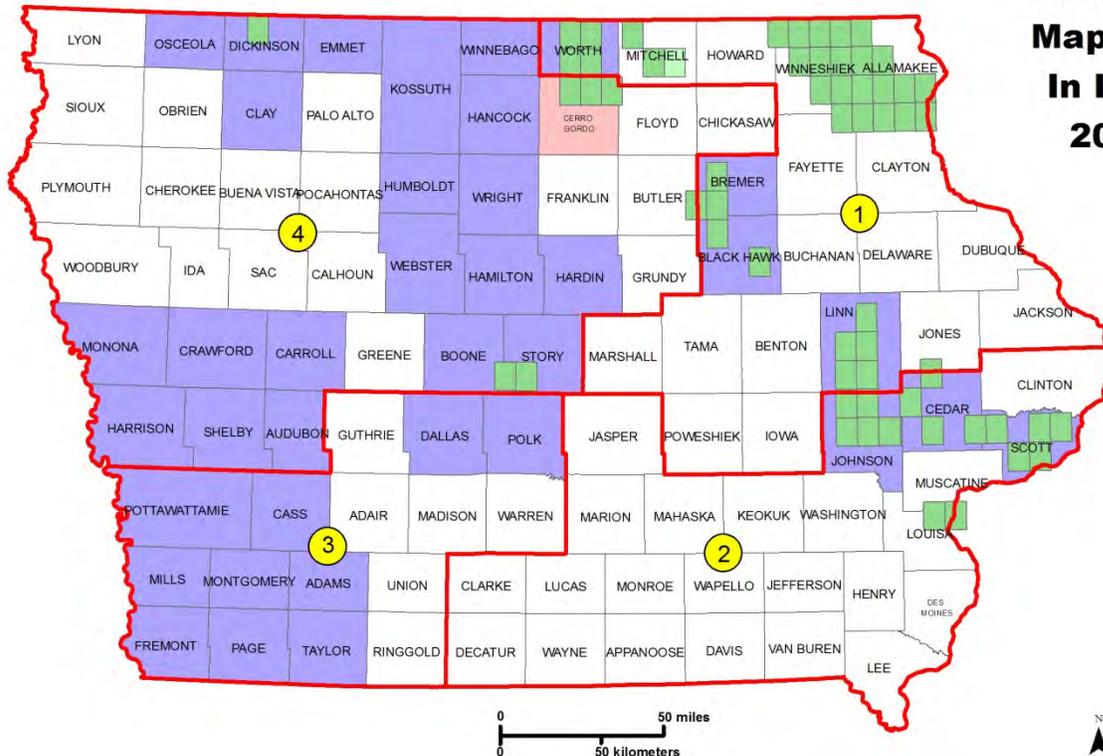
United States Geological Survey



National Cooperative Geologic Mapping Program

STATEMAP Component: States compete for federal matching funds for geologic mapping

Geologic Mapping In Iowa 2014



STATEMAP Funding (FY1993 through FY2014)

- ① Congressional District Numbers
- ▭ Congressional District Boundaries
- ▭ Completed 1:24,000 scale geologic maps
- ▭ In-progress 1:24,000 scale geologic maps
- ▭ Completed 1:100,000 scale geologic maps
- ▭ In progress 1:100,000 scale geologic maps
- ▭ Completed statewide regional bedrock geologic maps

Contact Information

Iowa Geological Survey (319-335-1575)
 State Geologist: Robert Libra
 STATEMAP Coordinator: Stephanie Tassier-Surine
<http://www.iowageologicalsurvey.org>

U.S.G.S. National Cooperative Geologic Mapping Program
 Program Coordinator: Peter T. Lyttle (703/648-6943)
 Associate Program Coordinators:
 Douglas A. Howard (703-648-6978)
 Linda J. Jacobsen (703-648-4335)
<http://ncgmp.usgs.gov>

National Geological and Geophysical Data Preservation Program

As the repository for the majority of the state's geologic information, IGS manages information and/or geologic samples from more than 79,000 unique sites, as well as collections of maps, publications, and other documents. These collections summarize the research conducted by the IGS and can date back to more than a century ago. Proper preservation and metadata creation ensure the collections can be referenced for years to come. To help achieve its long-term data preservation strategy, the IGS participates in the United States Geological Survey's National Geological and Geophysical Data Preservation Program (NGGDPP). The program provides the framework necessary to inventory and preserve collections. While the program offers a great benefit to lowans, data are also uploaded to a National Digital Catalog where the information can be referenced nationally. 2014 project year (2013 federal project year) focused on preserving data within a twelve county region in east-central Iowa. The majority of paper documents preserved to electronic format included well logs and paper publications. Metadata for these and other documents were created and uploaded to the USGS National Digital Catalog.



Scanning a map using the IGS' large format scanner.

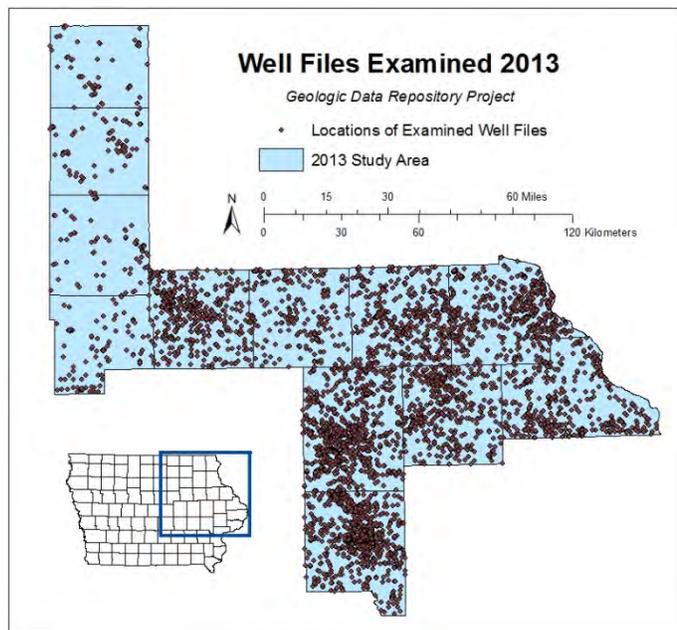
Work has begun for the 2015 grant and focuses on thirteen counties in the southeast region of the state. After completion of the 2015 grant, data in all geographic regions of the state will have experienced focused preservation efforts.

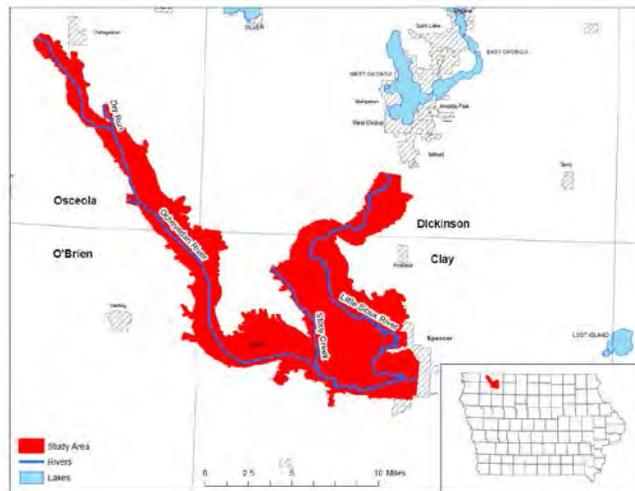
Water for lowans - Today and Tomorrow

Since 2007 IGS staff have spearheaded efforts to geologically characterize Iowa's major groundwater aquifers and

where data is sufficient to develop predictive models that can forecast the future status of our groundwater supplies. The aquifer studies and models have been widely used by industrial and community water developers, as well as the DNR Water Allocation program. Several major initiatives for 2014 are summarized below.

-- Aquifer Characterization and Drought Assessment, Ocheyedan River Alluvial Aquifer

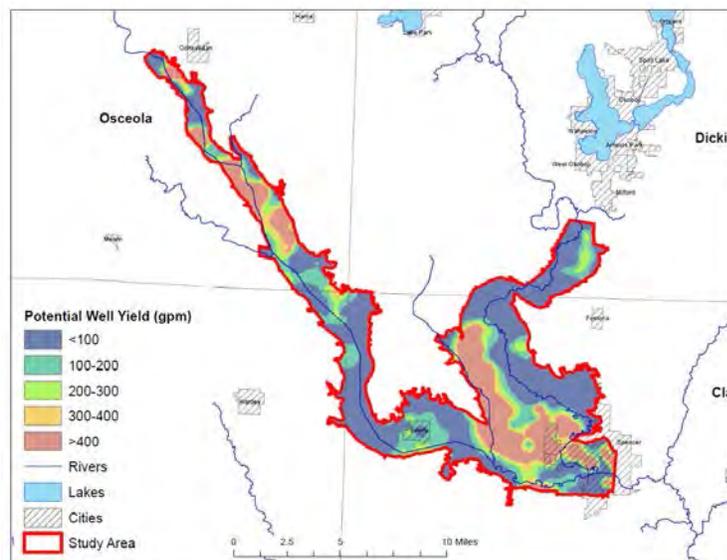




Extent of the Ocheyedan River aquifer study area

IGS completed a hydrogeologic evaluation of the water resources in the Ocheyedan River aquifer in Osceola, O'Brien, Clay and Dickinson counties. The primary objective was to evaluate the aquifer for future water supply development under drought conditions. Future work will include a calibrated groundwater flow model of the Osceola County Rural Water District (OCRWD) northern wellfield, which will be used to predict future well interference, available drawdown, optimal maximum pumping rates, and quantifying induced (river) recharge.

Twenty-nine active public wells were located within the model area and include five systems or communities (Iowa DNR Water-Use Database). In addition to the public wells, there are approximately 46 relatively high-capacity wells with water use permits in the area; these are used for irrigation, livestock, and industry.



Potential well yields in gallons per minute (gpm).

Hydraulic properties were obtained from six aquifer pump tests. In addition to the aquifer pump tests, a total of 66 specific capacity tests were made available by various consultants, well drillers, and communities. Hydraulic conductivity in the Ocheyedon River alluvial aquifer was found to range from 14 to 1,300 feet/day, with an arithmetic mean of 355 feet/day. The transmissivity of the Ocheyedon River aquifer was found to range from 330 feet²/day west of the City of Everly to 36,600 feet²/day at Iowa Lakes Rural Water District. Based on available data, the arithmetic mean transmissivity value was estimated to be 10,000 feet²/day.

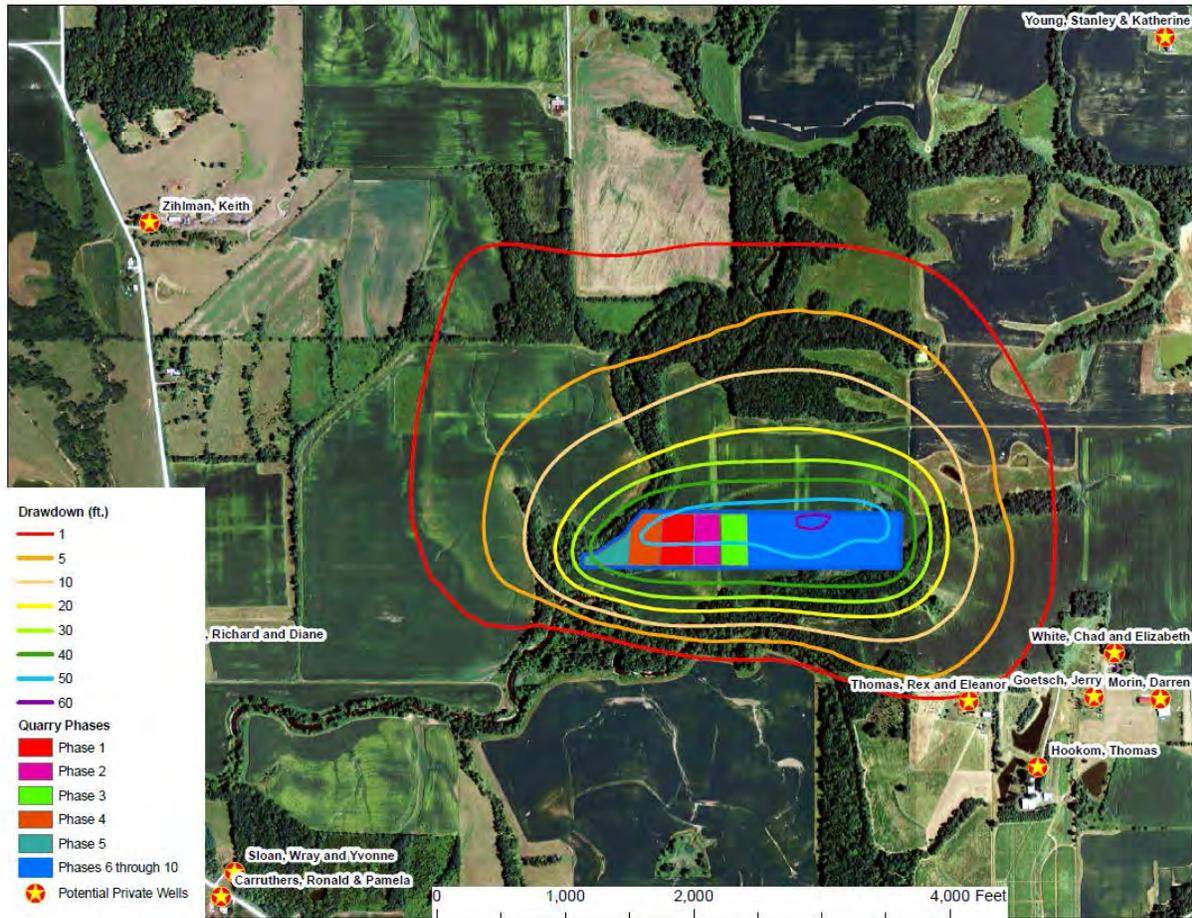
Potential well yield distribution was estimated using the transmissivity distribution and one-half the sand and gravel thickness. Potential well yields greater than 400 gallons per minute (gpm) are found near Spencer, ILRW, and OCRWD. There appears to be areas between the City of Everly and OCRWD, and along most of the upper Little Sioux River, which have potential well yields less than 100 gpm.

Total current water usage for the study area, not including private wells, is estimated at 3.1 billion gallons per year (8.6 million gallons per day), with a peak usage of 16.33 million gallons per day. Well interference likely occurs between the irrigation wells and the OCRWD and ILRW wells during peak summer-time usage. The application of a calibrated groundwater flow model will help evaluate the magnitude and significance of this well interference.

-- Well Interference Evaluation for a Proposed Quarry

The Iowa Geological Survey (IGS) conducted a well interference evaluation near a proposed limestone quarry located approximately 2-miles north of the City of Mount Pleasant, Iowa (Figure 1). The evaluation was done at the request of OMG Midwest, Inc., and included the collection of on-site hydrologic data, analyzing existing geologic and hydrologic data, and the development of a calibrated groundwater flow model. The calibrated groundwater flow model was used to simulate future drawdown over approximately 70 years caused by the periodic dewatering of the proposed quarry, and what impact, if any, the dewatering may have on the nearby private wells.

A MODFLOW simulation was run using the proposed sump elevation of approximately 130 feet below the ground surface at the end of Phase 10 mining (approximately 70 years). The sump elevation was again maintained for 3 months each year and was followed by 9 months of recovery or no pumping. The simulated drawdown caused by the dewatering of the proposed quarry at the end of Phase 10 mining is shown on Figure 2. The 1 foot drawdown contour extends approximately 1050 feet from the excavated quarry, and is approximately 150 feet from the nearest private well.



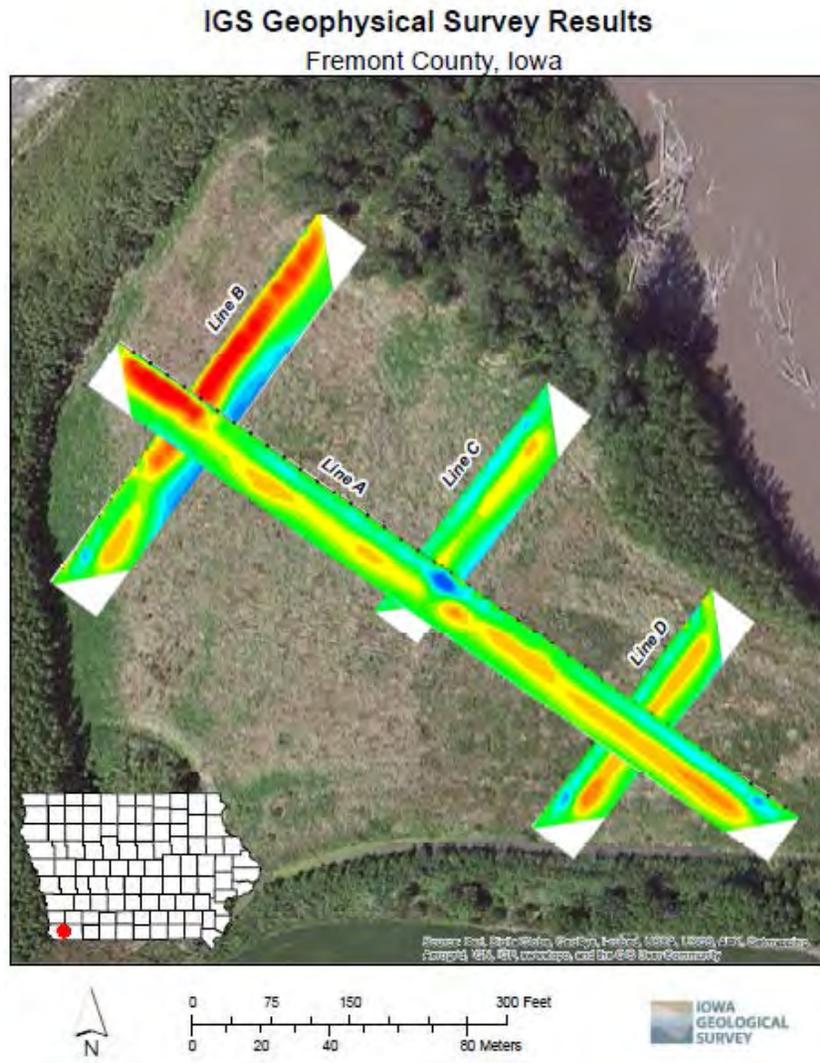
Simulated Drawdown after 70 Years of mining and dewatering activities.

-- City of Shenandoah Wellfield Expansion

Iowa Geological Survey evaluated the water resources near the airport in Shenandoah, to assess the feasibility of expanding the current city wellfield and water supply, which has been threatened by the recent drought conditions. The evaluation involved conducting geophysical cross sections, conducting and analyzing two pump tests, and re-calibrating an existing groundwater flow model.

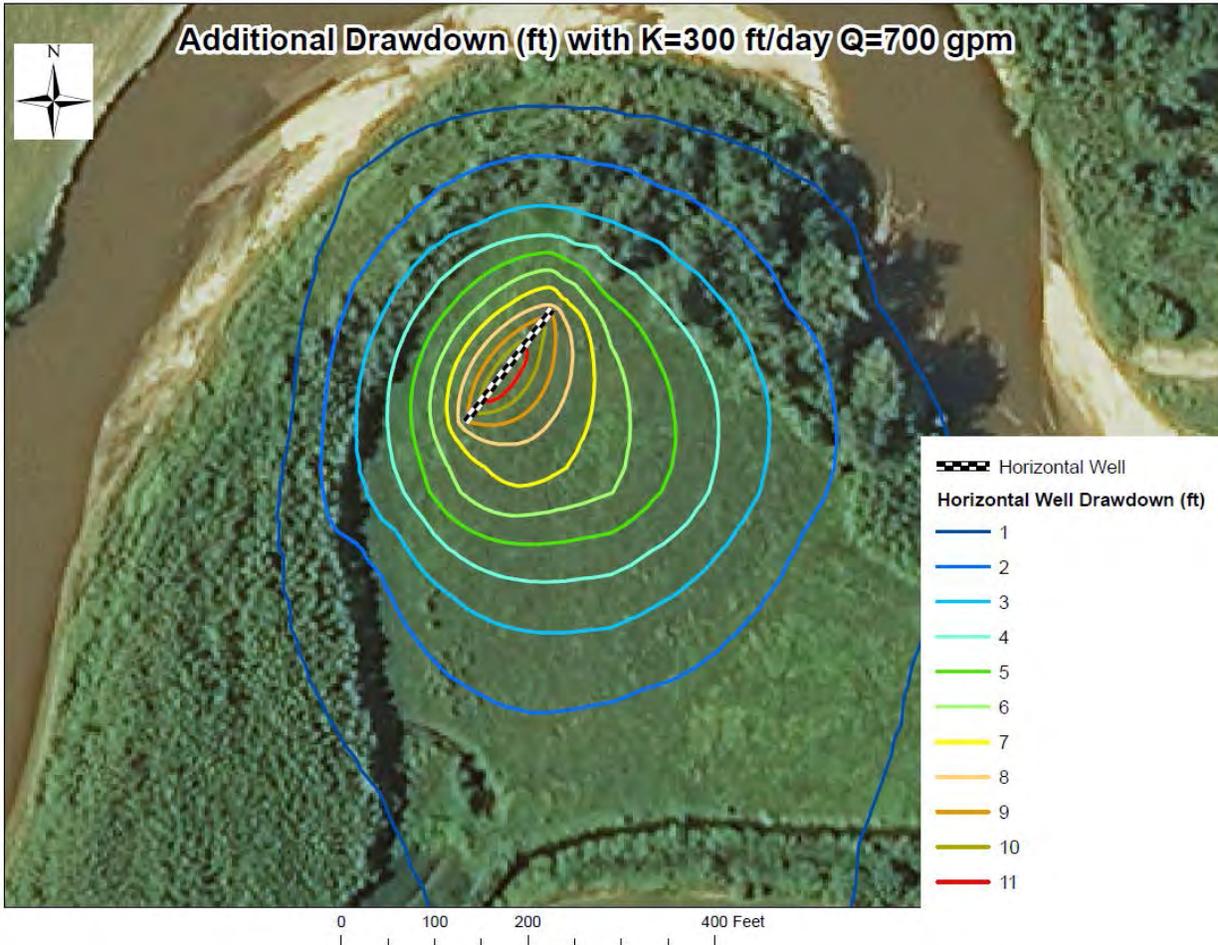
The investigation and modeling indicates additional water production may be possible from two or more additional vertical wells in the airport wellfield. Total wellfield water production increased by 325 gallons per minute (gpm) with the addition of two proposed wells TW-1 and TW-2, 400 gpm with the additional of three proposed wells TW-1, TW-2, and TW-3, and 450 gpm with the addition of four proposed wells TW-1, TW-2, TW-3, and TW-4. The most cost effective expansion would be either the two or three proposed well expansion. Adding a fourth proposed well increases the well interference between the existing and new wells, requiring lower pumping rates at each well. The final location and water production from any proposed

wells will need to be determined following test drilling, test well installation, and aquifer pump tests.



Based on the groundwater flow model, the use of a proposed recharge ditch near the airport wellfield may increase the total water production during a severe drought. Based on the groundwater model results, the recharge ditch may increase water production during a severe drought by as much as 400 gpm. Water quality data would need to be collected in Well 23 to make sure it is not classified as influenced groundwater (groundwater under the influence of surface water). The other option would be to simply shut off Well 23 when the recharge ditch is being used. Well 23 is one of the lower producing wells, and shutting it down would reduce the wellfield production by approximately 100 gpm.

A possible horizontal well near the East Nishnabotna River was also evaluated. Based on the model results, a proposed horizontal production well would produce approximately 300 to 700 gpm of additional water, depending on the hydraulic conductivity of the sand and gravel deposits. A separation distance of 200 feet should be maintained between the East Nishnabotna River and the proposed horizontal well lateral. The final location and water production from any proposed horizontal well would need to be determined following test drilling, test well installation, and aquifer pump tests.



Simulated drawdown in a proposed horizontal well assuming a hydraulic conductivity value of 300 feet/day. Based on the model results, maximum production was 700 gpm.

Exploring CR's 'Beer Caves' with Geophysics

Iowa Geological Survey researchers are exploring the legendary "beer caves" associated with the old Magnus Brewery, and located near Interstate 380 in downtown Cedar Rapids. Using advanced geophysical technology, IGS researchers can detect and delineate the structures without ever venturing below ground level. They conducted extensive studies of the area using electrical resistivity (ER) and electromagnetic terrain conductivity (EM) methods. With this

technology, they are able to model the subsurface to learn more about the location and the extent of the beer caves.

In the summer of 2014, heavy rains opened a sinkhole near the Seventh Street off-ramp in downtown Cedar Rapids. Iowa Department of Transportation (IDOT) bridge inspectors found the sinkhole and noted that it seemed to open into some sort of underground cavern. The inspectors lowered a camera into the void, and the resulting photos prompted further investigation.



Setting up for the Survey.

With consultation with the Office of the State Archaeologist (OSA), it was determined that the sinkhole offered entry to one of the city's long-abandoned beer caves.

When Interstate 380 was built in the 1970s, the beer caves once again came to light. The IDOT was required to log several borings, or drill holes, before construction. In the process, workers encountered voids that seemed to correlate with the old beer caves. The steel pilings that support raised sections of interstate ramps pierced the caves, but the road itself is safely supported by solid bedrock.

Once the interstate was completed, the beer caves once again slipped into obscurity. When the sinkhole appeared last summer, the IDOT contracted with the IGS to conduct an extensive geophysical investigation of the site to assist in determining the size, number, and orientation of the caves. According to OSA, there may as many as 14 caves.

The geophysical tools IGS uses don't provide an exact image, but rather a model that can be combined with other known information to piece together what's beneath the surface. ER is the most important tool for this study. Researchers pound 56 stainless steel stakes into the ground, connected by cables. They then send electric current through two of the stakes, which returns through up to eight of the other stakes. Each test takes about an hour and a half to cycle through all of the 56 electrodes. The result is a model of how the subsurface responds to the electrical charge. Since the caverns are assumed to consist mostly of open space, they should be more resistive electrically when compared to their surroundings.



Staff from the Office of the State Archaeologist briefly went into the caves and took photos. Photo by Marlin Ingalls

EM, the electromagnetic terrain conductivity method, uses a 15-foot-long device with a transmitter at one end and a receiver at the other. The operator walks back and forth across the field site, holding the EM at about hip level. The EM device collects five conductivity readings per second, which are recorded with precise GPS locations. EM surveys can collect data up to 20 feet below the ground surface, and all the data is recorded on a field PC.

EM surveys provide a map view of what is below the surface; ER, on the other hand, offers a two-dimensional slices or three-dimensional blocks of what's underground. With a combination of the methods, a more complete understanding of the subsurface results.

Back at the office, analysis of the data is an intensive and time-consuming process. The IGS team will provide a report to the IDOT before spring. IGS researchers typically use geophysical equipment to study shallow groundwater resources, but were excited to work alongside IDOT and OSA in this unique study.

Groundwater Science and Policy

A major undertaking by IGS staff in the late 2000's was the development of a predictive groundwater model for the deep, confined and artesian Jordan Aquifer. The Jordan Aquifer underlies most of the state and parts of surrounding states as well. It typically produces large volumes of water, and usually of good natural quality. The aquifer had been pumped extensively since the early 1900's; over a trillion gallons of water have been removed since then. As the Jordan is deep and isolated from the land surface in most of the state, it is only slowly replenished by rainfall. This and significant pumping have resulted in falling water levels and concerns for the long-term sustainability of the supply.

These concerns aren't new. Regulations limiting how far Jordan water levels are allowed to decline date to the 1970's. Those rules were based on the science of the day, and acted to place a limit on declines. However, viewed through today's science, including groundwater modeling, the rules needed updating to accomplish their goal. IGS modeling that is capable of predicting further water-level declines was a prime driver behind effort, and the modeling also was used to evaluate the impacts of different decline limits. The new rules are in the process of being finalized, the result of sound science leading to sound natural resource policy.

Education and Public Outreach

--Iowa State Fair



Geology Rocks - IGS and DNR staff at the State Fair

The Iowa Geological Survey (IGS) participated in the *Geology Rocks!* theme day program hosted by the Iowa Department of Natural Resources (IDNR) at the 2014 Iowa State Fair on August 9th. Two IGS geologists accompanied several IDNR staff to discuss geologic topics and answer questions from the over 500 citizens that visited the tent, located in the courtyard adjacent to the IDNR pavilion. Dozens of unique rock, mineral, and fossil specimens were on display along with informational posters such as *9 Meteorites in Iowa's History*, *Top Ten Rockin' Spots in Iowa*, *Iowa's Fantastic Fossil Finds*, and the 'new' Iowa Geological Survey. This event offers the perfect opportunity for geologists to interact with the public while informing them of the great work the IGS and the IDNR do for the citizens of Iowa.

--Learn About the Land RAGBRAI Brochures

The annual informational brochures describing the natural wonders occurring along the RAGBRAI route across the state were produced again for 2014, thanks to the financial support of the Iowa Limestone Producers Association (ILPA). With cooperation from the U. S. Geological Survey (USGS) in Iowa City and the Office of the State Archaeologist (OSA) at the University of Iowa (UI), the IGS generated a unique brochure for each of the seven days of the ride. These brochures included fascinating images, maps, graphics, and text highlighting the landscape, geology, history, and cultural aspects of Iowa that gives RAGBRAI participants an added appreciation for what Iowa has to offer. Over 1,000 sets of brochures were distributed by USGS volunteers at campgrounds and at Expo, along with OSA volunteers through the UI's new Mobile Museum (<http://discover.research.uiowa.edu/mobile-museum>). To download digital copies of the *Learn About the Land* brochures please visit <http://www.iihr.uiowa.edu/igs/newsevents/>.

The Sheldon Creek glacial advance is only exposed in a limited part of the state on the Northwest Iowa Plains and lowland Surface-landform regions. On Day 1, riders will cross onto the Sheldon Creek till plain between the towns of Boyden and Sheldon. Riders will be on the Sheldon Creek till until approximately nine miles west of Milford when they will ride onto the Des Moines Lobe. Riders will again cross the Sheldon Creek Formation till on Day 5 from Clear Lake across much of Cerro Gordo County and into Floyd County. Recent mapping studies in Worth and Cerro Gordo counties indicate that the Sheldon Creek boundary extends farther east than previously documented. Early- and mid-Wisconsin-age ice advances, dating from approximately 40,000 to 26,000 years before present, deposited glacial sediments throughout northeastern Iowa. Sheldon Creek Formation tills generally consist of yellowish-brown to gray, calcareous, fractured to massive clay loam. At depth this unit can be variably textured and contain significant sand and gravel bodies. Pierre Shale clasts may also be present. This unit overlies the much older Pre-Illinoian glacial tills and may be mantled with loess (wind-blown silt) deposits.

Human and Natural History Partners
 For the ninth year the Iowa Geological Survey (IGS), the U.S. Geological Survey (USGS), and the University of Iowa Office of the State Archaeologist (OSA) returns as "Human and Natural History Partners". Archaeology on the Road highlights the unique cultural history and prehistory of Iowa on the RAGBRAI route, pointing out interesting and significant archaeological sites and sharing Iowa's past along the way. Keep an eye out for "Team Archaeology" riders throughout the week and online. Learn about the Land provides daily brochures describing interesting landscape, geologic, and other natural historical features and facts along the RAGBRAI trail. Look for USGS volunteers as they distribute the Learn about the Land brochures in RAGBRAI campgrounds.

Special thanks to the Iowa Limestone Producers Association (ILPA) for assisting in the production of the Learn about the Land daily brochures. With their help, we are able to provide interesting information about one of Iowa's greatest natural resources... limestone!

RAGBRAI Day 1 2014
 Sunday, July 20
 Learn About the Land
 Drought

IGS
 IHR
 USGS
 IOWA LIMESTONE PRODUCERS ASSOCIATION
 DNR

Learn About the Land Brochures developed for RAGBRAI

--Saturday and Sunday at the Quarry

For the fifth straight year the IGS participated in the “Sunday at the Quarry” event on October 5, 2014 hosted by Basic Materials Company (BMC) at their quarry near Raymond, IA. More than 500 people attended the quarry open house to get a firsthand look at the inner workings of an active limestone quarry. The IGS showcased recent geologic mapping products as well as interesting samples for folks to view and handle. The highlight of this event is having rock hounds bring in fossil and mineral samples they just collected from freshly exposed rubble piles within the quarry. IGS geologists are always happy to add an interesting and informative story to their newly found keepsake.

New in 2014 was the “Saturday at the Quarry” event held at BMC’s quarry in Fertile, IA on August 9th, 2014. Scheduled in conjunction with Fertile Days, this event was attended by well over 300 people eager to explore their neighborhood quarry. IGS geologists were on hand to show off recent geologic maps of the area, interesting rocks and fossils, and to discuss a variety of topics with inquisitive citizens. The IGS is grateful for BMC to invite us every year to this unique and educational event. One we look forward to every year!





IGS staff talking rocks and mining at quarry open-houses, sponsored by BMC.

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

11

DECISION

TOPIC: Solid Waste Alternatives Program – Contract Recommendation

Presented at the December 2014, Commission meeting were SWAP committee recommendations following the review of October's round of applications. At that meeting, four (4) projects selected for funding were presented to the Commission. One (1) additional project being considered for funding at that time required additional review. This additional review has now been completed.

Before finalizing the funding recommendation, the question regarding whether or not the applicant's current permit with EPA allowed for the activities being proposed or if an amendment to the current permit or a separate EPA permit would be required. After discussions with EPA, our Solid Waste Section and the applicant, EPA determined that the existing permit allowed for the activities being proposed.

The project addresses a significant issue of sustainable and environmentally responsible recycling of lead-containing cathode ray tubes (CRTs). CRTs are the glass tubes used in electronics and older televisions. While electronic waste recycling has increased over the past several years, CRTs have and continue to be difficult to manage and to fully recycle because of their hazardous nature. A portion of the glass CRT is lined with lead, a hazardous heavy metal. The lack of adequate outlets has resulted in stockpiling of CRTs and in some cases, illegal disposal and shipping them overseas for disposal.

The review committee consisted of five persons representing the Land Quality Bureau (2), Iowa Society of Solid Waste Operations (1), Iowa Recycling Association (1), and the Iowa Waste Exchange (1).

At this time, the Department is requesting Commission approval to enter into a contract with A-TEC Electronics Recycling to implement complete CRT recycling.

A description of the recommended project, the project type, and the amount and type of funding assistance is attached.

Tom Anderson, Executive Officer II
Land Quality Bureau
Environmental Services Division

Attachment

a) Proposal description

January 26, 2015

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

12

DECISION

TOPIC

**Winneshiek County Recycling Department Household Hazardous
Waste (HHW) Satellite Year Round Service**

Recommendation:

The Department received one (1) application requesting \$116,732 in financial assistance through the Regional Collection Center Establishment Grant Program. After reviewing the application, the applicant project is recommended for funding in the amount of \$54,663.

Funding Source:

The selected Regional Collection Center Establishment Grant contract will be funded pursuant to the Groundwater Protection Fund (455E.11).

Background:

Iowa code requires the Department to establish facilities for the proper management and disposal of Household Hazardous Materials for both urban and rural populations. Regional Collection Centers are permanent facilities that provide household hazardous waste management education and on-going access to proper disposal of household hazardous materials generated by conditionally exempt small quantity generator (CESQG) businesses, urban and rural households, and farming operations. Household hazardous materials (HHMs) possess any or all of the following characteristics: toxic, corrosive, flammable or reactive.

A total of 7,057,212 pounds of waste were accepted, processed, recycled and disposed of through the RCC Program in FY 2014. These materials represent the most toxic materials in the solid waste stream and are being prevented from mixing with incompatible materials and entering Iowa's landfills.

Purpose:

Winneshiek County will be provided year round household hazardous materials education and convenient opportunities for on-going safe and proper disposal of hazardous materials generated by households, farming operations and eligible small businesses. The county has 7,997 households and 176 eligible small businesses that will benefit from this project. Projected HHMs that could be annually collected from Winneshiek County are 494,280 lbs.

A description of the project is attached.

At this time, the Department is requesting Commission approval to enter into a contract with Winneshiek County to establish a satellite Regional Collection Center serving Winneshiek County and partnering with Floyd Mitchell Chickasaw Regional Collection Center for final disposition of all household hazardous materials.

Tom Anderson, Executive Officer II
Land Quality Bureau
Environmental Services Division
January 26, 2015

REGIONAL COLLECTION CENTER ESTABLISHMENT PROGRAM

Following is a brief description of the RCC establishment grant application recommended for funding.

Applicant: Winneshiek County Solid Waste
2510 172nd Avenue
Decorah, Iowa 52101

Award Amount: \$54,663 **Contact:** Terry Buenzow (563) 382-6514

Cost Share Amount: \$ 550

Description: This application is to establish a new satellite collection center providing proper disposal opportunities and HHM education for Winneshiek County. The satellite facility will accept household hazardous materials year-round and will be located at the County Recycling Center. The facility will serve approximately 7,997 households and approximately 176 conditionally exempt small quantity generator businesses. Hazardous materials accepted at the satellite facility in Winneshiek County will be collected by their partner RCC facility, Floyd Mitchell Chickasaw RCC, located in Elma, for final processing and packaging for final disposition. Funding is requested for hazardous materials storage unit, concrete, fencing, electrical, awning, supplies, and educational materials.