

# Agenda

## Environmental Protection Commission

Tuesday, June 21, 2011  
DNR Air Quality Building  
7900 Hickman Road  
Windsor Heights, IA  
10:00 AM

9:00 AM – Commissioner Training Session (attendance optional)

10:00 AM – Meeting begins

10:30 AM – Public Participation<sup>1</sup>

### Agenda topics

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|----|---|-----------------------------------|
| 1  | Approval of Agenda  |                                   |
| 2  | Approval of Minutes   |                                   |
| 3  | Director's Remarks  |                                   |
| 4  | Clean Water and Drinking Water State Revolving Loan Fund – FY 2012 Intended Use Plans   | Patti Cale-Finnegan<br>(Decision) |
| 5  | Contract – State Hygienic Laboratory at The University of Iowa – Wetland Monitoring Laboratory Services   | Mary Skopec<br>(Decision)         |
| 6  | Solid Waste Alternatives Program – Contract Recommendations   | Brian Tormey<br>(Decision)        |
| 7  | Contract - Regional Collection Center Establishment Grant for Palo Alto County Solid Waste Agency   | Brian Tormey<br>(Decision)        |
| 8  | Contract – City of Seymour – Derelict Building Deconstruction Pilot Project   | Brian Tormey<br>(Decision)        |
| 9  | Contract with the University of Northern Iowa, Iowa Waste Reduction Center – Iowa Waste Exchange Program technical assistance, database management and training     | Brian Tormey<br>(Decision)        |
| 10 | Contract with the State Hygienic Laboratory at The University of Iowa for Laboratory Services for Contaminated Sites Program  | Brian Tormey<br>(Decision)        |
| 11 | Contract with The State Hygienic Laboratory at The University of Iowa for Laboratory Services and Corrective Action Specialist for Underground Storage Tank Program | Brian Tormey<br>(Decision)        |
| 12 | Contract Amendment with University of Iowa for Dam Safety Inspectors  | Lori McDaniel<br>(Decision)       |
| 13 | Contract with University of Iowa (Iowa Flood Center) for Bridge Mounted Stream/River Sensors  | Sharon Tahtinen<br>(Decision)     |
| 14 | Contract Amendments – Utility Management Organization Grants for Wastewater Services to Small and Unsewered Communities   | Sharon Tahtinen<br>(Decision)     |
| 15 | Contract with IDALS-DSC for Nonpoint Source Program Basin Coordinator Staffing Assistance   | Steve Hopkins<br>(Decision)       |
| 16 | Contract with IDALS-DSC for Nonpoint Source Program Administrative Staffing Assistance  | Allen Bonini<br>(Decision)        |
| 17 | Contract with University of Northern Iowa for Small Business Assistance Program: Iowa Air Emissions Assistance Program (IAEAP)                                      | Christina Iams<br>(Decision)      |
| 18 | Amendment to Contract ESDCIams110002: Execution of the State of Iowa Air Pollution Control Implementation Plan: Polk County   | Christina Iams<br>(Decision)      |

19	Amendment to Contract ESDCIams110001: Execution of the State of Iowa Air Pollution Control Implementation Plan: Linn County	Christina Iams (Decision)
20	Contract with University of Iowa for 2012 SHL Services in Support of the DNR Air Quality Bureau	Sean Fitzsimmons (Decision)
21	Notice of Termination; Amendments to Chapters 60, 63, 64 and 65, Animal Feeding Operations and related NPDES Rule Chapters	Wayne Gieselman (Decision)
22	Contract Amendment – ISU– Historic Aerial Photography Project	Chris Ensminger (Decision)
23	Denial of Petition for Rulemaking by Kids vs Global Warming	Jim McGraw (Decision)
24	Monthly Reports	Wayne Gieselman (Information)
25	General Discussion <ul style="list-style-type: none"> <li>• July 13<sup>th</sup> Commissioner Training Session</li> </ul>	
26	Items for Next Month’s Meeting <ul style="list-style-type: none"> <li>• July 12th – Windsor Heights</li> <li>• August 16th - Windsor Heights</li> </ul>	

For details on the EPC meeting schedule, visit [www.iowadnr.com/epc/index.html](http://www.iowadnr.com/epc/index.html).

<sup>1</sup> 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.

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

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**ITEM**

**4**

**DECISION**

**TOPIC**

**Clean Water and Drinking Water State Revolving Loan Fund – FY 2012  
Intended Use Plans**

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Commission approval is requested for the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Intended Use Plans (IUPs) for FY 2012 (July 1, 2011 – June 30, 2012). The Iowa SRF continues to grow and expand its role as one of the primary funding sources for water quality and protection of public health. Since 1989, the Iowa SRF has committed \$1.7 billion for water and wastewater infrastructure and nonpoint source pollution control.

The Iowa SRF is operated through a coordinated partnership between the Department of Natural Resources (DNR) and the Iowa Finance Authority (IFA). DNR administers the environmental and permitting aspects of the programs, with IFA providing financial assistance including loan approval and disbursements.

The FY 2012 IUPs include plans of action for the SRF programs, including goals and objectives, an analysis of current and projected financial capability, financial management strategies, the project priority lists, discussion of set-aside programs and efforts, and planned uses for administrative accounts.

The CWSRF provides low-interest loans for wastewater and storm water infrastructure improvements and nonpoint source water quality projects. Since 1989, the Iowa CWSRF has committed \$1.2 billion for wastewater upgrades and \$105 million for non-point source projects. The FY 2012 IUP shows project requests totaling \$572 million, plus \$29.5 million for non-point source projects. It is anticipated that approximately \$419 million will be disbursed during FY 2012 for new loans and projects still drawing on loans signed in previous years.

Since 2000, the DWSRF has committed \$491 million in loans to public water supplies to protect public health and improve infrastructure. The FY 2012 IUP shows funding requests totaling \$186 million. It is anticipated that approximately \$137 million will be disbursed during FY 2012.

The Sources and Uses tables for both CWSRF and DWSRF show that funds are available or obtainable to provide anticipated disbursements. The IUPs will be updated quarterly during FY 2012. Iowa continues to be able to fund all projects that are eligible for SRF assistance.

The SRF programs have undergone significant changes in recent years due to actions at the federal level. With increased funding have come new requirements. During FY 2009, \$77 million in federal stimulus funds through the American Recovery and Reinvestment Act (ARRA) were allocated to Iowa's SRF programs. ARRA included new requirements such as Davis-Bacon prevailing wages, Buy American, additional subsidization, and green projects.

The federal fiscal year 2010 appropriations for the SRF programs carried over the ARRA requirements, minus Buy American. Iowa solicited for green projects and identified disadvantaged communities for loan forgiveness during 2011.

Congress passed a continuing resolution for the federal 2011 appropriations that continued the 2010 requirements. EPA guidance on these requirements was issued in late May 2011. Now that the guidance has been finalized, Iowa's SRF program can respond and plan for compliance. Our plans for the implementation of these requirements will be presented in IUP updates this year.

A public meeting was held May 12, 2011 to receive comments on the proposed IUP updates. No oral comments were provided at the hearing. The written comment period closed on May 19, 2011. The U.S. Environmental Protection Agency Region 7 SRF staff provided written comments. The comments primarily requested that data and information typically included in the SRF capitalization grant agreements be noted in the IUPs. Changes were made to the IUPs in response.

Patti Cale-Finnegan, DNR SRF Coordinator  
Water Quality Bureau  
May 23, 2011

DWSRF FY 2012 Q1												
Project Name	DWSRF No.	Project Description	IUP Yr	Project Type	Priority Points	Quarter	Project Status	Current Requests	FY 2010 Loan Forgiveness	Loan Signed	Original Request	Loan Amount
Albion	PD-DW-11-31	Planning and design	2012	G	P&D	1	R	\$ 89,100				
Eldon (Supplemental)	FS-90-08-DWSRF-033 (2)	New elevated storage tank, water main replacement	2012	B,C,E	55	1	P	\$ 62,325				
Farmington	FS-89-12-DWSRF-002	Water main replacement	2012		40	1	P	\$ 398,950				
Oxford Junction	FS-53-12-DWSRF-001	New well #4 with modifications at treatment for Well #2 to include Well #4	2012		40	1	P	\$ 398,870				
Palo	FS-57-12-DWSRF-003	New water treatment plant for new municipal system	2012			1	P	\$ 1,040,200				
Story City	PD-DW-11-35	Planning and design	2012	G	P&D	1	R	\$ 227,100				
Aplington	FS-12-11-DWSRF-032	Iron filtration and softening plant rehab	2011	B,E	30	4	P	\$ 905,084				
Center Junction	FS-53-11-DWSRF-033	Replacement of ground storage reservoir, hydropneumatic tank, and generator	2011	B,C,E	55	4	P	\$ 125,000				
Colfax	FS-50-11-DWSRF-035	New meter installation	2011	B,E	30	4	P	\$ 532,000	20%			
Collins*	FS-85-11-DWSRF-024	Meter replacement	2011	B,E	20	4	P	\$ 78,100	20%			
Des Moines Water Works	FS-77-11-DWSRF-036	New variable frequency driven pump to maximize use of infiltration gallery water, avoiding the need to use reverse osmosis system	2011	B	15	4	P	\$ 675,000	20%			
Durant*	FS-16-11-DWSRF-026	Meter replacement with addition of radio read and leak detection	2011	B,E	30	4	P	\$ 172,537	20%			
Garnavillo	FS-22-11-DWSRF-020	Water main replacement and looping	2011	B,C,E	40	4	P	\$ 372,990				
Geneva*	FS-35-11-DWSRF-025	Meter installation	2011	B,C,E	40	4	P	\$ 101,076	30%			
Le Mars*	FS-75-11-DWSRF-022	Meter replacement, automatic meter reading system	2011	B,E	30	4	P	\$ 984,890	20%			
Leland	FS-95-11-DWSRF-030	Redundant well, iron/manganese filtration plant rehab, flushing hydrant replacement	2011	B,C,E	55	4	P	\$ 244,420				
Lidderdale	FS-14-11-DWSRF-028	Water main replacement, elevated storage tank, distribution system mapping, water meter replacement, and Well #1 abandonment	2011	B,C,E	40	4	P	\$ 1,602,244	60%			
Maquoketa*	FS-49-11-DWSRF-027	Meter replacement with addition of radio read	2011	B,D,E	35	4	P	\$ 399,360	20%			
Otho	FS-94-11-DWSRF-021	Iron filtration rehab	2011	B,C,E	35	4	P	\$ 295,000				
Ottumwa*	FS-90-11-DWSRF-023	Meter replacement, variable frequency drives for high service pumps	2011	B	20	4	P	\$ 1,250,000	20%			
Panora	FS-39-11-DWSRF-029	Addition of reverse osmosis to treatment process	2011	B,C,E	35	4	P	\$ 888,000				
Ralston	FS-14-11-DWSRF-034	Redundant well, booster pump installation, treatment plant upgrades	2011	B,C,E	55	4	P	\$ 343,600	40%			
Stacyville (Supplement)	FS-66-06-DWSRF-009 (2)	Two new wells and elevated storage with water main replacement	2011	B,C,E	55	4	R	\$ 65,240				
Story City	FS-85-11-DWSRF-037	Water meter replacement	2011	B,E	30	4	P	\$ 207,000	20%			

Timber Ridge Water Utility Corporation*	FS-06-11-DWSRF-031	Redundant well, disinfection, hydropneumatic tank, emergency generator, meter installation	2011	B,C,E	55	4	P	\$ 295,930	20% of green portion			
Columbus City	FS-58-11-DWSRF-014	Water main replacement	2011	B,C,E	40	2	P	\$ 596,000				
Creston Water Works	FS-88-11-DWSRF-011	Water main replacement	2011	B,C,E	40	2	P	\$ 967,984				
Donahue	FS-82-11-DWSRF-016	Water main replacement	2011	B,C,E	40	2	P	\$ 136,855				
Frankville (Winneshiek Co BO)	FS-96-11-DWSRF-012	New public water supply to replace private wells	2011	A,E	45	2	P	\$ 762,449	40%			
Keokuk	FS-56-11-DWSRF-019	Switch from gas chlorine to on-site generation	2011	B	15	2	P	\$ 1,246,340	30%			
Minden	FS-78-22-DWSRF-013	New elevated storage tank	2011	B,E	45	2	P	\$ 454,702				
Rolfe	FS-76-11-DWSRF-017	Backup well, water main replacement, and new well controls.	2011	B,C,E	55	2	P	\$ 922,130	50%			
Webster City	FS-40-11-DWSRF-015	Filter renovation, new chlorine gas system, new well, and new transmission main	2011	B,E	45	2	P	\$ 4,297,550				
Fort Madison	FS-56-11-DWSRF-002	20" feeder main to fill east and west reservoirs	2011	B,C	30	1	P	\$ 3,701,000				
Hudson	FS-07-11-DWSRF-006	New well and distribution system to provide supply for Hudson, which is currently consecutive to Waterloo	2011	B,E	45	1	P	\$ 2,973,634				
Kelley	FS-85-11-DWSRF-008	New well and treatment, EST, raw water main, and water main replacement	2011	B,E	45	1	P	\$ 1,825,070	30%			
Libertyville	PD-DW-10-52	Planning and design	2011	G	P&D	1	R	\$ 95,000				
New London	FS-44-11-DWSRF-001	New ground storage reservoir, high service pump, standby power, and water main replacement	2011	B,C,E	55	1	P	\$ 1,111,000				
Ottumwa	FS-90-11-DWSRF-005	Ultraviolet disinfection, replace 3 high service pumps, water main replacement, meter replacement	2011	B,E	45	1	P	\$ 1,666,500	40%			
Sioux City	FS-97-11-DWSRF-004	Southbridge treatment plant	2011	B	35	1	P	\$ 22,767,000				
Walker	FS-57-11-DWSRF-009	New elevated storage tank and water main replacement	2011	B,E	45	1	P	\$ 844,239				
Wall Lake	PD-DW-10-72	Planning and design	2011	G	P&D	1	R	\$ 130,000				
Wall Lake*	FS-81-11-DWSRF-007	Meter replacement, well #2 pump replacement, new control panel for wells, and distribution system improvements	2011	B,C,E	55	1	P	\$ 864,378	20% of green portion			
Ainsworth	FS-92-10-DWSRF-066	Water main looping and replacement	2010	B,C,E	40	4	P	\$ 202,000				
Braddyville	FS-73-10-DWSRF-062	Replacement of treatment plant	2010	B,C,E	50	4	P	\$ 83,578				
Castalia	FS-96-10-DWSRF-059	Emergency power, flow meters, replacement of pressure tanks, water main replacement	2010	B,C,E	40	4	P	\$ 114,000				
College Springs	FS-73-10-DWSRF-061	Connection to Southwest Rural Water District	2010	A,C,E	80	4	P	\$ 110,363				
Dexter	FS-25-10-DWSRF-068	Joint treatment plant with the City of Redfield	2010	B,C,E	35	4	P	\$ 1,149,835				
Dexter	PD-DW-10-43	Planning and design	2010	G	P&D	4	R	\$ 125,000				

Early	FS-81-10-DWSRF-052	New elevated storage tank and water main replacement	2010	B,C,E	55	4	R	\$ 780,000				
Fremont	FS-62-10-DWSRF-054	Water main replacement and 50 water meters	2010	B,C,E	40	4	P	\$ 760,530				
Keota	FS-54-10-DWSRF-060	Water main replacement	2010	B,E	30	4	P	\$ 372,690				
Lansing	FS-03-10-DWSRF-072	Water main replacement	2010	B,E	30	4	P	\$ 992,370				
Lewis	FS-15-10-DWSRF-071	Replacement of (Dakota sandstone) well and water main replacement	2010	B,C,E	55	4	P	\$ 426,000				
Mason City	FS-17-10-DWSRF-069	Replacement of elevated storage tank with same size; new security fence	2010	B	35	4	P	\$ 1,085,750				
Poweshiek Water Association	PD-DW-10-42	Planning and design	2010	G	P&D	4	R	\$ 180,250				
Redfield	FS-25-10-DWSRF-055	Treatment plant replacement	2010	B,C,E	50	4	P	\$ 1,568,328				
Shambaugh	FS-73-10-DWSRF-063	Replacement of treatment plant	2010	B,C,E	55	4	P	\$ 68,428				
Shelby	FS-83-10-DWSRF-064	Water main replacement and new elevated storage tank	2010	B,E	30	4	C	\$ 816,388				
Shenandoah	FS-73-10-DWSRF-065	Additional wells, new treatment plant, transmission main, and storage	2010	B,C,E	55	4	C	\$ 12,204,840				
Sibley	FS-72-10-DWSRF-070	Replacement of ground storage reservoir with elevated storage tank and water main replacement	2010	B,C,E	40	4	P	\$ 1,390,770				
St. Ansgar	FS-66-10-DWSRF-057	Well replacement and water main replacement	2010	A,B,C,E	85	4	P	\$ 263,610				
St. Lucas	FS-33-10-DWSRF-074	New public water supply	2010	A,C,E	55	4	P	\$ 2,246,351				
Wayland	FS-44-10-DWSRF-073	Secondary supply from Rathbun and treatment plant improvements to handle supplementary source	2010	B,C,E	35	4	P	\$ 237,350				
Ames	FS-85-10-DWSRF-046	New 15 million gallon/day lime softening plant	2010	B	35	3	P	\$ 49,471,000				
Ames	PD-DW-10-23	Planning and design	2010	G	P&D	3	R	\$ 6,249,000				
Epworth	FS-31-10-DWSRF-039	Replacement of water main, new well and wellhouse for redundancy	2010	A,B,E	90	3	R	\$ 600,000				
Fort Dodge	FS-94-10-DWSRF-048	Replacement of water main, new well and wellhouse for redundancy	2010	B,E	15	3	P	\$ 2,963,467				
Lisbon	FS-57-10-DWSRF-041	Water main replacement to improve pressure and flow	2010	B,E	30	3	P	\$ 718,110				
Mahaska Rural Water System	FS-62-10-DWSRF-042	Two new wells, auxiliary power, upgrade water treatment plant, and add emergency connection with booster pumping to Oskaloosa Municipal Water System	2010	B,E	45	3	P	\$ 3,609,600				
Reinbeck (Revised)	FS-38-10-DWSRF-050	Water main and Well #1 replacement	2010	B,E	30	3	P	\$ 388,000				
Sioux City	FS-97-10-DWSRF-040	Install conventional flocculation, settling, and chemical addition at Zenith Plant for total organic carbon removal and add emergency power	2010	A,B,E	60	3	R	\$ 9,542,000				

Elgin	FS-33-10-DWSRF-010	Replacement of water main, new well and wellhouse for redundancy	2010	B,C,E	40	2	P	\$ 1,307,950				
Harlan	FS-83-10-DWSRF-017	Two new wells, transmission main, and new softening plant	2010	B,E	40	2	P	\$ 8,080,000				
Iowa DNR-Parks Bureau	PD-DW-10-08	Planning and design	2010	G	P&D	2	R	\$ 158,296				
La Porte City	FS-07-10-DWSRF-019	New well, treatment plant rehab, new elevated storage tank, raw water transmission main	2010	B,E	45	2	P	\$ 1,214,000				
Manchester	FS-28-10-DWSRF-018	Nitrate removal treatment for existing Wells #4, 5, and 6	2010	B,E	45	2	P	\$ 4,660,000				
Montezuma	FS-79-10-DWSRF-015	Treatment plant rehabilitation	2010	B,E	45	2	P	\$ 2,125,000				
Center Point	FS-57-10-DWSRF-008	New water tower and associated water main	2010	B,E	30	1	R	\$ 1,766,894				
Epworth	PD-DW-09-57	Planning and design	2010	G	P&D	1	R	\$ 73,000				
Fredericksburg	FS01910-DWSRF-007	New Cambrian Jordan Sandstone well and chemical feed building, associated water main	2010	B,E	45	1	R	\$ 219,186				
Ladora	FS-48-10-DWSRF-005	Water main replacement	2010	B,E	30	1	P	\$ 471,342				
Gladbrook	FS-86-09-DWSRF-024	Replace water storage tank and water main	2009	B,C,E	40	4	P	\$ 527,220				
Oto	FS-97-09-DWSRF-016	New water storage tank	2009	B,C,E	40	4	P	\$ 61,065				
Union	FS-42-09-DWSRF-023	Replace water storage tank	2009	B,C,E	55	4	P	\$ 813,000	30%			
Woodward	FS-25-09-DWSRF-021	Treatment plant replacement	2009	B,C,E	35	4	R	\$ 1,450,360				
Riverside	PD-DW-09-13	Planning and design	2009	G	P&D	3	R	\$ 55,000				
Timber Ridge Investment LLC	PD-DW-09-15	Planning and design	2009	G	P&D	3	R	\$ 50,000				
Anamosa	FS-53-09-DWSRF-006	New well (Phase 1 of 3 to include reverse osmosis to remove radium)	2009	B,E	45	2	R	\$ 1,640,000				
Xenia (Beaver Creek)	PD-DW-09-25	Planning and design	2009	G	P&D		C	\$ 838,568				
Rathbun RWA	FS-04-08-DWSRF-017	New intake, new transmission main, new 8 million gallon/day conventional treatment plant, emergency power, clearwell improvement, high service pumps	2008	B,G	30	2	R	\$ 3,885,000	30%			
Kelley	PD-DW-06-88	Planning and design	2008	G	P&D	1	R	\$ 430,000				
								\$ 185,661,334			\$ -	\$ -
<b>Project Status</b>	<b>Project Type</b>											
Contingency -- C	A = Water Quality and Human Health Risk-Related Criteria											
Dropped -- D	B = Infrastructure and Engineering-Related Improvement											
Ready for Loan -- R	C = Affordability Criteria											
Loan Signed -- L	D = Special Category Improvements											
Planning Stage -- P	E = Project Serves Population less than 10,000											
I-JOBS projects	F = Supplemental Loan for Previously Approved Project											
Green projects (*indicates a business case is required)	G = Planning and Design Loan											
Add. Subsidization 2010												

4.2 CWSRF FY 12 Project Loan Application Status - WEB Q1

CWSRF FY 2012 Q1														
Project Name	NPDES No.	Project Number	CWSRF No.	Project Description	IUP Yr	Needs Category	Priority Points	Quarter	Project Status	Current Requests	FY 2010 Loan Forgiveness	Loan Signed	Original Request	Loan Amount
ADLM (Davis County)	Unsewered		PD-CW-11-33	Planning and design	2012	I	P&D	1	R	\$ 52,000				
Cedar Falls	0709001	S2009-0191	1920617 01	Ultraviolet disinfection treatment process	2012	II	220	1	P	\$ 19,745,300				
Charles City			PD-CW-11-27	Planning and design	2012	II	P&D	1	R	\$ 400,000				
Colo			PD-CW-11-30	Planning and design	2012	IIIA	P&D	1	R	\$ 20,000				
Denver	0915001		PD-CW-11-34	Planning and design	2012	II, IIIA	P&D	1	R	\$ 550,000				
Grand Mound			PD-CW-11-28	Planning and design	2012	IIIA, IIIB	P&D	1	R	\$ 201,040				
Homestead S.D.			PD-CW-11-29	Planning and design	2012	I	P&D	1	R	\$ 140,000				
Martensdale	9147001		PD-CW-11-47	Planning and design	2012	II,IIIS,IIIB	P&D	1	R	\$ 220,000				
North English	4858001		PD-CW-11-36	Planning and design	2012	II,IIIA,IIIB	P&D	1	R	\$ 140,000				
Prairie City			PD-CW-11-26	Planning and design	2012	I	P&D	1	R	\$ 260,700				
RUSS (Abingdon)	Unsewered		PD-CW-11-38	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Augusta)	Unsewered		PD-CW-11-39	Planning and design	2012	I,IVA	P&D	1	R	\$ 193,000				
RUSS (Croton)	Unsewered		PD-CW-11-40	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Greenbriar)	Unsewered		PD-CW-11-41	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Lakewood)	Unsewered		PD-CW-11-42	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Libertyville Road)	Unsewered		PD-CW-11-43	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Moar/Powdertown)	Unsewered		PD-CW-11-44	Planning and design	2012	I,IVA	P&D	1	R	\$ 100,000				
RUSS (Wever)	Unsewered		PD-CW-11-46	Planning and design	2012	I,IVA	P&D	1	R	\$ 193,000				
Wapello	5879001		PD-CW-11-37	Planning and design	2012	II	P&D	1	R	\$ 115,000				
Albert City	1103001	S2011-0114	1920608 01	New lagoon, disinfection	2011	II,IIIA	184	4	C	\$ 2,787,264	30%			
Callender	9417001	S2011-0132	1920616 01	Sewer rehabilitation, bioswale for storm water treatment	2011	IIIA,VI	129	4	C	\$ 717,125				
Charles City	N/A	N/A	GNS10-1	Permeable paving	2011	VI-C	150	4	P	\$ 1,682,397	30%			
Coralville	N/A	N/A	GNS10-4	Green storm water infrastructure	2011	VI-C	120	4	P	\$ 4,703,000	30%			
Denver	0915001	S2007-0432	1920609 01	Sewer rehabilitation, new wastewater treatment plant	2011	II,IIIA	184	4	P	\$ 6,153,127				
Dubuque (Upper Bee Branch)	N/A	N/A	GNS10-5	Stream daylighting	2011	VI-C	162	4	P	\$ 14,767,000	30%			
Geneva	3539000	S2010-0308	1920610 01	New collection system, sand mound treatment	2011	II	169	4	P	\$ 518,775	30%			
Gillett Grove			PD-CW-11-23	Planning and design	2011	I,IIIB	P&D	4	R	\$ 75,000				
Liscomb	6462001	S2011-0014	1920611 01	Lagoon upgrade	2011	I	159	4	C	\$ 427,028				
Lohrville	1389001	S2010-0121	1920615 01	Septic Tank Effluent Pump (STEP) system, new lagoon	2011	I,IIIA	174	4	C	\$ 2,342,425	30%			
Luther	Unsewered		PD-CW-11-21	Planning and design	2011	I,IVA,IVB	P&D	4	R	\$ 115,000				
Paullina	7155001	S2011-0076	1920607 01	Interceptor sewer upgrades	2011	IVB	139	4	P	\$ 498,000				
Pocahontas	7633001	S2011-0086	1920612 01	Wastewater treatment plant upgrade	2011	II	149	4	P	\$ 478,134				
Polk County (Phase 4 & 5, Trunk Sewer)		S2010-0093	1920511 01	New interceptor sewer to convey wastewater to Wastewater Reclamation Facility	2011	IVB	139	4	P	\$ 9,240,490				
Reasnor (I/I)	5071001	S2009-0207	1920613 01	Sewer rehabilitation, sludge removal	2011	I	149	4	P	\$ 455,510				
Reinbeck	N/A	N/A	GNS10-3	Permeable paving	2011	VI-C	140	4	P	\$ 107,880	30%			
Spirit Lake	N/A	N/A	GNS10-2	Bioretention cells	2011	VI-C	80	4	P	\$ 59,000	30%			
Springville	5782002	S2011-0055	1920614 01	Sewer rehabilitation	2011	IIIB,IIIA	139	4	P	\$ 966,350				
Whitten	4293001	S2010-0133	1920618 01	Sewer rehabilitation, lagoon upgrade	2011	I,IIIA	149	4	C	\$ 318,706				

4.2 CWSRF FY 12 Project Loan Application Status - WEB Q1

Albert City	1103001		PD-DW-11-06	Planning and design	2011	II	P&D	3	R	\$ 245,422				
Clarion	9909001	S2010-0186	1920602 01	Wastewater treatment plant upgrades	2011	II	189	3	C	\$ 3,309,871				
Cumberland	1516001	S2011-0006	1920601 01	Sewer rehabilitation, disconnection of cross-connections	2011	IIIA	139	3	P	\$ 101,000				
Freeport (Winneshiak Co)	9630001	S2010-0118	1920599 01	Sewer rehabilitation, pump station upgrades	2011	IIIB	215	3	P	\$ 399,960				
Griswold	1528001	S2010-0014	1920603 01	Sewer rehabilitation	2011	IIIA	149	3	P	\$ 2,332,040				
Lake Mills	9445001	S2010-0205	1920604 01	Wastewater treatment plant upgrade	2011	II	184	3	P	\$ 7,035,054	30%			
RUSS (Area On-Site-Phase 1)			PD-CW-11-10	Planning and design	2011	I	P&D	3	R	\$ 193,000				
Truro	6167001	S2010-0144	1920605 01	Sewer rehabilitation	2011	IIIA	139	3	P	\$ 793,860				
Wyoming	5392001	S2009-0239	1920606 01	Lagoon upgrade	2011	I	97	3	P	\$ 1,480,812				
Albion	6403001	S2010-0230	1920579 01	Sewer rehabilitation	2011	IIIA	139	2	P	\$ 1,190,285				
Anita	1503001	S2010-0173	1920580 01	Sewer rehabilitation	2011	IIIA	139	2	P	\$ 2,251,385				
Blakesburg	6827001	S2010-0167	1920581 01	Sewer rehabilitation	2011	IIIA	109	2	P	\$ 589,840				
Buffalo	8218001	S2010-0278	1920582 01	Disinfection, wastewater treatment plant upgrades	2011	II	169	2	C	\$ 287,850				
Earling	8320001	S2010-0187	1920584 01	Controlled discharge lagoon	2011	II	184	2	P	\$ 2,724,114				
Keokuk (Victory Park)	5640001	S2010-0312	1920596 01	Combined sewer separation	2011	V	199	2	P	\$ 4,585,400				
Kingsley	7537001	S2010-0262	1920585 01	New aerated lagoon, disinfection	2011	II	194	2	C	\$ 2,357,598				
Leon	2742001	S2008-0094	1920597 01	Sewer rehabilitation	2011	IIIA	149	2	C	\$ 1,523,080				
Massena	1558001	S2010-0129	1920578 01	Sewer rehabilitation	2011	IIIA	149	2	C	\$ 1,907,651				
Mondamin	4349001	S2007-0165	1920587 01	Sewer rehabilitation	2011	IIIA	139	2	P	\$ 83,578				
Nevada	8562001	S2010-0153	1920586 01	Disinfection	2011	II	194	2	P	\$ 805,000				
Pella	6368006	S2010-0130	1920588 01	Collection and treatment system improvements	2011	II,IIIA	159	2	C	\$ 5,319,793				
Sloan	9780001	S2006-0053	1920589 01	New aerated lagoon, disinfection	2011	II	194	2	C	\$ 2,218,393				
South-West Shoreline Sanitary District	1178001	S2010-0249	1920590 01	Septic Tank Effluent Pump (STEP) system, new lagoon	2011	I	172	2	P	\$ 3,036,342				
State Center	6484001	S2010-0277	1920591 01	Sewer rehabilitation	2011	IIIA	129	2	P	\$ 1,868,298				
Swea City	5584001	S2011-0023	1920598 01	Sewer rehabilitation	2011	IIIA	149	2	C	\$ 809,313				
Wapello (Supplemental)	5879001	S2009-0147	1920470 02	Combined sewer separation	2011	V	150	2	R	\$ 327,444				
Wastewater Reclamation Authority	7727001	S2010-0310	1920593 01 (Phase 19 Seg 1-4)	Interceptor sewer to convey wastewater from Bondurant to the Wastewater Reclamation Facility	2011	IVB	150	2	C	\$ 16,545,820				
Waverly (6th Ave.Lift Station)	0990001	S2010-0284	1920594 01	Pump station upgrade	2011	IIIB	142	2	C	\$ 551,460				
Waverly (Clarifier Equipment)	0990001	S2010-0284	1950595 01	Clarifier upgrade to prevent algae growth and improve disinfection	2011	II	162	2	C	\$ 786,790				
Webster City	4063001	S2010-0254	1920592 01	Digester upgrade	2011	II	159	2	P	\$ 576,710				
Alexander	Unsewered	S2010-0151	1920574 01	Collection system and lagoon	2011	I	170	1	P	\$ 1,370,570				
Alexander	Unsewered		PD-CW-10-41	Planning and design	2011	I,IVA	P&D	1	R	\$ 160,000				
Ames	8503001	S2010-0041	1920526 01	Disinfection	2011	II	189	1	P	\$ 3,120,900				
Bennett	1603001	S2010-0120	1920529 01	Sewer rehabilitation, pump station upgrades	2011	IIIA	137	1	P	\$ 2,545,200				

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Brighton	9209001	S2009-0288	1920515 01	Sewer rehabilitation, wastewater treatment plant upgrade	2011	II,IIIB	140	1	P	\$ 3,200,000				
Carlisle	9113001	S2010-0027	1920550 01	Lagoon upgrade	2011	II	215	1	R	\$ 303,000				
Carlisle	9113001		PD-CW-10-71	Planning and design	2011	IIIA,IIIB	P&D	1	R	\$ 120,000				
Charles City	3405001	S2010-0232	1920551 01	Disinfection	2011	II	170	1	P	\$ 2,840,120				
Fayette County Board of Supervisors (Prairie View Care Facility)	3300901	S2010-0149	1920534 01	Lagoon upgrade	2011	I	180	1	C	\$ 319,796				
Grinnell	7930001	S2010-0229	1920554 01	Sewer rehabilitation	2011	IIIA	129	1	P	\$ 1,295,625				
Hampton	3544001	S2006-0242	1920530 01	New wastewater treatment plant	2011	II,IVB	160	1	C	\$ 7,409,158				
Hospers	8439001	S2009-0096	1920524 01	Wastewater treatment plant upgrade	2011	II	165	1	P	\$ 2,179,600				
Hull	8444001	S2008-0093	1920516 01	Lagoon upgrade, disinfection	2011	II	184	1	C	\$ 1,955,057				
Joice	Unsewered	S2009-0173	1920556 01	Collection system and force main to convey wastewater to Lake Mills	2011	IVB	150	1	P	\$ 2,031,060				
Knoxville	6342001		PD-CW-10-54	Planning and design	2011	II	P&D	1	R	\$ 350,000				
Knoxville	6342001	S2010-0206	1920557 01	Detention basin to store peak wet weather flows	2011	IVB	130	1	C	\$ 3,684,278				
Lamont	1061001	S2010-0116	1920576 01	Lagoon upgrade, pump station upgrade	2011	I	140	1	C	\$ 1,169,665				
Lansing	0345054	S2010-0147	1920519 01	Sewer rehabilitation, extend sewer to unsewered residences	2011	IIIA,IVA	147	1	C	\$ 110,832				
Ledyard	Unsewered	S2010-0152	1920542 01	New collection system, decentralized treatment	2011	I	210	1	P	\$ 1,938,897				
Lenox	8748001	S2010-0172	1920558 01	Sewer rehabilitation	2011	IIIA	129	1	C	\$ 195,940				
Libertyville	5148001		PD-CW-10-51	Planning and design	2011	I,IIIA,IIIB, VI	P&D	1	R	\$ 95,000				
Lone Rock	Unsewered	S2009-0060	1920573 01	New collection system, controlled discharge lagoon	2011	II,IVB	140	1	P	\$ 1,868,500				
Manning	1457001	S2010-0225	1920559 01	Interceptor sewer, disinfection	2011	II,IIIB	197	1	C	\$ 423,844				
Meriden*	1843001	S2010-0174	1920560 01	Inflow/infiltration reduction, variable frequency drives, premium efficiency pumps	2011	I,IIIB	159	1	C	\$ 373,700	20% of green project components			
Muscatine	7000600	S2010-0228	1920561 01	Connect mobile home park to city sewer system	2011	IVB	135	1	C	\$ 933,240				
Neola	7853001	S2010-0011	1920562 01	New wastewater treatment plant, new pump station	2011	II,IVB	159	1	C	\$ 3,265,633				
New London	4458001	S2010-0155	1920545 01	Wastewater treatment plant upgrade	2011	II	190	1	P	\$ 3,765,000				
Newhall	653001	S2010-0115	1920577 01	New wastewater treatment plant	2011	II	120	1	C	\$ 4,383,347				
Osceola	2038002	S2010-0251	1920563 21	Sewer rehabilitation	2011	IIIA,IIIB	120	1	C	\$ 5,555,000				
Ottumwa (Richmond Ave area)	9083001	S2006-0453	1920565 01	Combined sewer separation	2011	V	175	1	P	\$ 3,636,000	30%			
Reasnor	5071001	S2009-0207	1920543 01	Lagoon expansion	2011	I	160	1	P	\$ 737,805				
RUSS (Pekin Sewer)	Unsewered		PD-CW-10-48	Planning and design	2011	I,IVA	P&D	1	R	\$ 193,000				
Salix	9770001	S2009-0279	1920473 01	Pump station upgrade	2011	IIIB	150	1	R	\$ 373,983				
Sergeant Bluff	9774001	S2010-0140	1920567 01	Interceptor sewer upgrades	2011	IVB	145	1	P	\$ 1,528,130				
Spencer	2171004	S2010-0111	1920528 01	Combined sewer separation	2011	V	185	1	P	\$ 2,300,000				

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St. Ansgar	6673001	S2010-0148	1920544 01	Sewer rehabilitation	2011	IIIB	170	1	P	\$ 390,365				
Underwood	7869001	S2008-0186	1920568 01	Sewer rehabilitation	2011	IIIA	147	1	C	\$ 252,399				
Walker	5792001	S2010-0126	1920569 01	Conversion to controlled discharge lagoon	2011	II	160	1	P	\$ 2,650,240				
Wall Lake	8166061		PD-CW-10-73	Planning and design	2011	IIIA,IIIB	P&D	1	R	\$ 275,000				
Wheatland	2394001	S2010-0199	1920570 01	Sewer rehabilitation	2011	IIIA	120	1	C	\$ 557,520				
Windsor Heights (Revised)	7727001	S2010-0223	1920571 01	Sewer rehabilitation	2011	IIIB	160	1	C	\$ 5,048,384				
Winterset	6171001	S2010-0227	1920572 01	Sewer rehabilitation, disinfection	2011	II,IIIB	130	1	C	\$ 2,131,100				
Alden	4213001	S2009-0324	1920539 01	Sewer rehabilitation	2010	IIIA	142	4	L	\$ 103,020				
Bedford	8709001	S2007-0348	1920540 01	Sewer rehabilitation, disinfection, pump station upgrades	2010	IIIA,IIIB	194	4	P	\$ 1,535,200				
Carson	7809001	S2010-0054	1920532 01	Disinfection	2010	II	190	4	P	\$ 370,625				
Cedar Rapids	5715001	S2010-0127	1920536 01	Wastewater treatment plant upgrade	2010	II	185	4	P	\$ 6,400,000				
Cherokee	1811002	S2010-0139	1920546 01	Pump station upgrades	2010	IIIB	160	4	R	\$ 257,833				
Gilbertville	0733001	S2009-0110	1920548 01	New activated sludge treatment plant, disinfection	2010	II	165	4	P	\$ 1,692,760				
Madrid	0848001	S2010-0026	1920535 01	New wastewater treatment plant	2010	II	194	4	P	\$ 4,571,260				
Mason City	1750001	S2010-0079	1920520 01	Sewer rehabilitation	2010	IIIA	160	4	P	\$ 202,000				
McCallsburg	8552001	S2010-0061	1920521 01	Sewer rehabilitation, new pump station, lagoon expansion	2010	I,IIIA	159	4	P	\$ 1,272,903				
Minburn	2547001	S2009-0119	1920533 01	Sewer rehabilitation, new lagoon	2010	I	159	4	P	\$ 2,045,025				
Oelwein	3353001	S2010-0150	1920541 01	Sewer rehabilitation, new interceptor sewer	2010	IVB	150	4	P	\$ 2,281,329				
Primghar	7155001	S2010-0128	1920527 01	Sewer rehabilitation	2010	IIIA	139	4	P	\$ 367,640				
Sioux Center	8486002	S2010-0055	1920525 01	Disinfection	2010	II	170	4	P	\$ 489,100				
St. Charles	6161001	S2006-0539	1920547 01	Sewer rehabilitation	2010	IIIA	139	4	R	\$ 323,200				
Washington	9271001	S2008-0245	1920522 01	New wastewater treatment plant, new interceptor sewer	2010	II	125	4	P	\$ 20,520,680				
Council Bluffs	7820001	S2009-0320	1920504 01	Digester upgrade	2010	I	165	3	R	\$ 1,537,725				
Fairfield	5131001	S2009-0298	1920505 01	Sludge storage	2010	II	85	3	R	\$ 1,878,600				
Fayette	3342001	S2008-0323	1920506 01	Wastewater treatment plant upgrade, disinfection	2010	II	187	3	P	\$ 1,031,000				
Lakota	Unsewered	S2008-0228	1920507 01	New collection system, controlled discharge lagoon	2010	I	159	3	P	\$ 1,839,008				
Ledyard			PD-CW-10-20	Planning and design	2010	I,IVA	P&D	3	R	\$ 14,700				
Mingo	5052001	S2008-0304	1920510 01	Lagoon expansion	2010	I	172	3	P	\$ 1,515,000				
Ottumwa	9083001		PD-CW-10-12	Planning and design	2010	V	P&D	3	R	\$ 1,300,000				
Wastewater Reclamation Authority	7727001	S2010-0059	1920498 01 Westside Supplemental Equalization Basin	Protect pump station and equalization basin from flooding	2010	IIIA	160	3	P	\$ 24,341,000				
Wastewater Reclamation Authority	7727001	S2007-0049	1920499 01 Westside Pump Station Mitigation	Protect pump station and equalization basin from flooding	2010	IVB	150	3	R	\$ 1,525,100				
Wastewater Reclamation Authority	7727001	S2008-0187	1920500 01 Southern Tier High Flow Pump Station	Pump station upgrades	2010	IIIA	160	3	R	\$ 4,534,900				

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Wastewater Reclamation Authority	7727001	S2010-0060	1920501 01 Equalization Basin Utilization (1-Easterlake; 2-Beaver Creek Pump Station)	Equalization basin upgrades	2010	IIIA	160	3	P	\$ 977,175				
Wastewater Reclamation Authority	7727001	S2008-0015	1920502 01 WDSM Outfall (Phase 13 Seg 6)	New interceptor sewer	2010	IVB	150	3	P	\$ 4,600,550				
Waucoma	3375001	S2009-0161	1920508 01	Disinfection	2010	II	165	3	P	\$ 301,570				
Waukee	2573001	S2010-0035	1920509 01	New interceptor sewer to eliminate septic systems	2010	IVB	150	3	P	\$ 4,098,587				
Wheatland	2394001		PD-CW-10-10	Planning and design	2010	IIIA, IIIB,V	P&D	3	R	\$ 67,000				
Centerville	0407003	S2009-0307	1920486 01	Wastewater treatment plant upgrade	2010	II	190	2	P	\$ 1,248,865				
Council Bluffs	7820001	S2009-0128	1920488 01	Disinfection	2010	II	210	2	R	\$ 3,962,275				
Cresco	4515001	S2009-0295	1920489 01	Biosolids storage	2010	II	150	2	P	\$ 910,010				
Cresco	4515001		PD-CW-10-05	Planning and design	2010	II	P&D	2	R	\$ 87,000				
Dakota City	4622001	S2009-0252	1920479 01	Wastewater treatment plant upgrade	2010	II	170	2	P	\$ 1,907,842				
Davenport	8222003	S2006-0279	1920490 01	Interceptor sewer	2010	IVB	125	2	P	\$ 28,280,000				
Davenport	8222003	S2006-0279	1920491 01	Interceptor sewer	2010	IVB	125	2	P	\$ 3,636,000				
Ida Grove	4728001	S2009-0276	1920493 01	Pump station upgrades, disinfection	2010	II,IIIB	169	2	R	\$ 298,960				
Iowa DNR-Parks Bureau			PD-CW-10-09	Planning and design	2010	I,IIIA,IIIB,IV A, IVB,V,	P&D	2	R	\$ 1,066,357				
Janesville	0732001	S2009-0108	1920471 01	Disinfection, lagoon upgrade, sludge removal	2010	II	160	2	R	\$ 484,396				
Prairie City	5064001	S2008-0223	1920494 01	New wastewater treatment plant	2010	II	160	2	P	\$ 3,973,047				
Sioux City	9778001	S2009-0275	1920495 01	New interceptor sewer, new pump station	2010	IVB	145	2	P	\$ 3,192,231				
Sioux City (Supplemental)	9778001	S2008-0260	1920415 02	Wastewater treatment plant upgrades	2010	II	145	2	R	\$ 7,600,000				
Waverly	0990001	S2009-0278	1920496 01	Interceptor sewer upgrades	2010	IVB	147	2	P	\$ 1,818,000				
Waverly	0990001	S2010-0006	1920497 01	New interceptor sewer	2010	IVB	147	2	P	\$ 1,742,250				
Allerton			PD-CW-09-66	Planning and design	2010		P&D	1	R	\$ 215,000				
Asbury	3102001		PD-CW-09-42	Planning and design	2010	IVA, IVB	P&D	1	R	\$ 200,000				
Clinton	2326001	S2005-0017	1920452 01	Wastewater treatment plant upgrade	2010	II	169	1	R	\$ 17,840,000				
Collins	8515001	S2008-0404	1920461 01	Sewer rehabilitation, lagoon upgrade, pump station	2010	I	150	1	R	\$ 3,291,590				
Deloit	2421001		PD-CW-09-48	Planning and design	2010		P&D	1	R	\$ 100,000				
Eagle Grove	9926001	S2009-0202	1920464 01	Sewer rehabilitation	2010	IIIA	129	1	P	\$ 611,923				
Odebolt	8144001	S2009-0026	1920453 01	New controlled discharge lagoon	2010	I	174	1	R	\$ 1,916,892				
Pisgah	4364001	S2006-0415	1920467 01	Lagoon upgrade	2010	I	167	1	P	\$ 415,615	30%			
Randall	Unsewered		PD-CW-09-65	Planning and design	2010	IIIA	P&D	1	R	\$ 50,000				
Readlyn	0965001	S2009-0030	1920468 01	Disconnect residential groundwater flows to sanitary sewers	2010	IIIA	139	1	P	\$ 1,331,000				
Stacyville	6677001		PD-CW-09-54	Planning and design	2010	IIIA,IIIB	P&D	1	R	\$ 24,500				
Steamboat Rock	4289001	S2008-0306	1920469 01	Reed bed sludge treatment	2010	II,IIIB	150	1	R	\$ 997,880				

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Allerton	9303002	S2009-0132	1920450 01	Lagoon upgrade, disinfection	2009	II	149	4	C	\$ 2,499,750				
Boone	0819001	S2008-0303	1920368 33 (Phase 3)	Sewer rehabilitation	2009	IIIA, IIIB	129	4	R	\$ 2,688,135				
Brandon	1011001	S2009-0160	1920443 01	Sewer rehabilitation	2009	IIIA, IIIB	180	4	P	\$ 850,420				
Clinton	2326001	S2005-0016	1920280 12	Wastewater treatment plant upgrade	2009	V	159	4	R	\$ 2,282,600				
Council Bluffs	7820001		PD-CW-09-39	Planning and design	2009	II	P&D	4	R	\$ 344,600				
Council Bluffs	7820001		PD-CW-09-40	Planning and design	2009	II	P&D	4	R	\$ 109,800				
Donnellson	5620001	S2009-0047	1920441 01	Sewer rehabilitation, lagoon upgrade, disinfection	2009	II	159	4	P	\$ 1,836,180				
Elgin	3338001		PD-CW-09-31	Planning and design	2009	IVA	P&D	4	R	\$ 210,000				
Hull	8444001		PD-CW-09-36	Planning and design	2009	I,IIIA,IIIB	P&D	4	R	\$ 200,000				
Terril	3080001	S2009-0090	1920449 01	Lagoon upgrade, pump station	2009	I	157	4	P	\$ 1,098,880				
Wastewater Reclamation Authority	7727001	S2008-0202	1920444 01 SWADF (Phase 22 Seg 4 & 5)	New interceptor sewer to convey wastewater to Wastewater Reclamation Facility	2009	IVB	150	4	R	\$ 6,549,150				
Wastewater Reclamation Authority	7727001	S2009-0219	1920457 01 Main Outfall (Phase 17 Seg 1, 3-7)	Main outfall replacement	2009	IVB	160	4	R	\$ 31,472,469				
Wastewater Reclamation Authority	7727001	S2009-0219	1920458 01 Combined Sewer Solids Separation Facility (Phase 17 Seg 2)	Treatment facility for combined wastewater during high flows	2009	V	180	4	R	\$ 53,672,612				
Deloit	2421001	S2009-0109	1920438 01	Lagoon upgrade	2009	I	147	3	P	\$ 216,000				
Hospers	8439001		PD-CW-09-09	Planning and design	2009	I	P&D	3	R	\$ 225,000				
Anamosa	5307001	S2006-0197	1920355 02	Wastewater treatment plant upgrade	2009	II	170	2	R	\$ 1,919,000				
Storm Lake	1178001		PD-CW-09-01	Planning and design	2009	II, IIIB	P&D	2	R	\$ 175,000				
Grinnell	7930001		1920057 02	Refinance	2009	I, IIIA, IVB	Refinance	1	R	\$ 2,190,000				
Lake Park	3045001	S2009-0089	1920447 01	Sewer rehabilitation	2009	IIIB	129		R	\$ 1,603,451				
Atlantic	1509001	S2007-0025	1920381 01	Equalization basin	2008	II	155	4	R	\$ 14,692,000				
Boone	0819001		PD-CW-08-24	Planning and design	2008	IIIA	P&D	4	R	\$ 811,000				
Colesburg	2809001	S2006-0385	1920385 01	Lagoon upgrade	2008	I	159	4	P	\$ 1,321,000				
Luther	Unsewered	S2007-0027	1920386 01	New collection system, controlled discharge lagoon	2008	II	180	4	P	\$ 1,919,000				
Norway	0656001	S2007-0069	1920382 01	Lagoon upgrade	2008	II	159	4	P	\$ 2,752,000				
Norway	0656001		PD-CW-08-16	Planning and design	2008		P&D	4	R	\$ 225,000				
Wastewater Reclamation Authority	7727001	S2009-0085	1920425 01 (Four Mile)	New interceptor sewer to convey wastewater to Wastewater Reclamation Facility	2008	IVB	150	4	R	\$ 13,473,000				
Steamboat Rock	4289001		PD-CW-08-07	Planning and design	2008	II	P&D	3	R	\$ 141,000				
Wastewater Reclamation Authority	7727001	S2008-0187	1920375 01	New interceptor sewer to convey wastewater to Wastewater Reclamation Facility	2008	II, IIB	180	3	R	\$ 30,855,000				
RUSS (Argyle)	Unsewered		PD-CW-06-69	Planning and design	2008	I, IVA	P&D	1	R	\$ 193,000				

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Everly	2115001	S2007-0141	1920344 01	Sewer rehabilitation	2007	IIIB	160	4	P	\$	753,000				
Everly	2115001		PD-CW-06-55	Planning and design	2007		P&D	4	R	\$	92,500				
RUSS (Mt. Union)	Unsewered		PD-CW-06-59	Planning and design	2007	I, IVA	P&D	4	R	\$	193,000				
University Park 6290001	6290001	S2006-0241	1920331 01	Sewer rehabilitation	2007	IIIB	129	1	R	\$	312,000				
West Liberty	7073001	S2004-0084	1920278 01	Wastewater treatment plant upgrade	2004	II	149		R	\$	1,750,000				
Hamburg	3621001	S2008-0295	1920198 02	Lagoon expansion, pump station	2000	I, IIIA	152		P	\$	448,000				
											571,785,970			\$	-
<b>Project Status</b>															
Contingency -- C			I	Secondary Treatment											
Dropped -- D			II	Treatment more stringent than secondary											
Ready for Loan-- R			IIIA	Infiltration/Inflow rehabilitation											
Loan Signed -- L			IIIB	Major sewer system rehabilitation											
Planning Stage -- P			IVA	New collectors and appurtenances											
I-JOBS projects			IVB	New interceptors and appurtenances											
Antidegradation			V	Correction of combined sewers											
Green Projects 2010 (*indicates that a business case is required)			VI	Stormwater management program											
Add. Subsidization FY 2010				VIA	Conveyance										
				VIB	Treatment										
				VIC	Green infrastructure										
				VID	General										
			VII	Non-point source control projects; subcategories below:											
				VIIA	Agricultural cropland sources										
				VII B	Animal sources										
				VII C	Silviculture										
				VII D	Urban sources										
				VII E	Groundwater protection (unknown sources)										
				VII F	Marinas										
				VII G	Resource extraction										
				VII H	Brownfields										
				VII I	Storage tanks										
				VII J	Landfills										
				VII K	Hydromodification										
				VII L	Decentralized septic systems										

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## INVESTING IN IOWA'S WATER

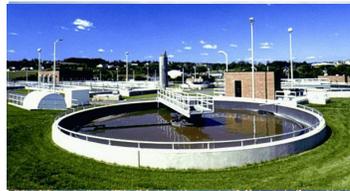
# INTENDED USE PLANS

Clean Water and Drinking Water State Revolving Fund Programs

State Fiscal Year 2012 (July 1, 2011 – June 30, 2012)

Iowa Department of Natural Resources  
Iowa Finance Authority

Approved by the Environmental Protection Commission June 21, 2011





## INTRODUCTION

The Iowa SRF (State Revolving Fund) is Iowa's primary funding source for drinking water and wastewater infrastructure, as well as projects addressing storm water quality and nonpoint source pollution. The Iowa SRF continues to grow and expand its role as the best choice for financing water quality and protection of public health. Since 1989, the Iowa SRF has loaned more than \$1.8 billion.

The Iowa SRF is operated through a unique partnership between the Department of Natural Resources (DNR) and the Iowa Finance Authority (IFA). DNR administers the environmental and permitting aspects of the programs, with IFA providing financial assistance including loan approval and disbursements. There are two separate funds: the Clean Water SRF, which finances water quality projects; and the Drinking Water SRF, which finances drinking water system upgrades to provide safe drinking water.

Actions at the federal level since 2009 have initiated significant changes in the SRF programs. Congress attached new requirements to the SRF programs starting with the American Recovery and Reinvestment Act (ARRA), the federal stimulus. Green projects, additional subsidization (such as loan forgiveness), Davis-Bacon prevailing wage rates, and Buy American were new provisions required for ARRA funds.

With the exception of Buy American, these requirements were continued by Congress by attaching them to the federal fiscal year (FFY) 2010 appropriations. Out of the \$50 million the DWSRF and the CWSRF received in capitalization grants, at least 20% must be used for green projects, and a portion must be used for additional subsidization. Projects to meet those requirements were identified in Iowa's SFY 2011 Intended Use Plans.

All the FFY 2010 requirements were held over along with government funding through several continuing resolutions. Congress was unable to pass a FFY 2011 budget until spring 2011. It is unknown at this time what the status of those requirements will be for FY 2011 funding.

An additional state source of water and wastewater funding is being provided through the IJOBS program and connected to SRF. IJOBS is a state bonding program. Grants for communities' projects are tied to SRF eligibility and all grantees must also receive an SRF loan. Twenty million dollars was set aside for communities over 10,000 population. Three grants, to Clinton, Davenport, and Sioux City, were made in February 2010. The awards for \$35 million worth of grants to communities under 10,000 population were announced for 71 projects in early July 2010.

### ***The Base SRF Programs***

The "pots" of money from ARRA and the FFY 2010 grants have included special requirements, but the regular, or base, SRF programs continue to operate. In the base SRF programs, there are three types of loans available to help cities, public water supplies, counties, sanitary districts, or utility management organizations upgrade their water and wastewater systems.

- Planning and design (P&D) loans are provided at 0% interest for up to three years to cover the costs of preparing facility plans and project specifications. The loans will be rolled into SRF construction loans or repaid by another source of permanent financing. Many facilities are using P&D loans to prepare for applying for grants and other financing as well as for SRF loans.
- Construction loans are offered at 3% interest. Loan terms can extend to 30 years based on the average useful life of the project, and, for drinking water projects, the disadvantaged status of the applicant.
- Source water protection loans are offered at 0% interest. These loans can help public water supplies acquire land and conservation easements or fund practices in their wellhead or source water protection areas.

SRF loans can be used in conjunction with other programs, and many SRF projects are co-funded with Community Development Block Grants, IJOBS grants, or federal grants.

While there are certain requirements associated with federally funded programs, the savings for most communities will outweigh these other factors in deciding how to finance projects. In addition, SRF staff provides assistance to borrowers to address these requirements.

The SRF also helps Iowans address nonpoint source water quality problems. Through five targeted programs, loans are facilitated by participating lenders throughout the state.

- The On-Site Wastewater Systems Assistance Program (OSWAP), providing loans to rural homeowners to replace inadequate septic systems. New systems are certified by county sanitarians.
- The Local Water Protection (LWP) Program, addressing soil, sediment, and nutrient control practices on agricultural land. The Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation, operates the program through local Soil and Water Conservation Districts.
- The Livestock Water Quality Facilities (LWQ) Program, assisting livestock producers with manure management plans, structures, and equipment. Facilities with 1,000 animal unit capacity or under are eligible. The Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation, operates the program through local Soil and Water Conservation Districts.
- The Stormwater Management Best Practices Program, addressing water quality-based measures. The Iowa Department of Agriculture and Land Stewardship cooperates with the DNR to evaluate projects and line up financing. These projects are funded out of the General Nonpoint Source set-aside.
- The General Nonpoint Source (GNS) Program, for a wide variety of other water quality protection efforts. The program is coordinated by DNR and projects include habitat and wetland restoration, landfill closure, lake restoration, and watershed planning.

In the base SRF programs, funding is only used for loans. The diagram shows the sources and uses and how the funds revolve. The funds are capitalized by federal grants and state bonds required for a 20% match. Bonds can also be issued to generate additional loan funds, “leveraging” the capacity of the SRF.



When loans are made, all loan repayments and interest income must go back into the loan funds. In this way, the funds truly revolve and grow in their capacity to meet water quality and drinking water needs into the future.

### **FFY 2010 Funding**

On October 31, 2009, Congress passed the FFY 2010 appropriations bill. Iowa's CWSRF received \$27.6 million, and the DWSRF received \$23.2 million. The appropriations language included new requirements, including several that were carried over from the American Recovery and Reinvestment Act (ARRA) federal stimulus.

For the CWSRF:

- A minimum of \$4,129,860 (14.97%) must be used for "additional subsidization" in the form of grants, loan forgiveness, or negative interest loans. Iowa is using a portion of the loan forgiveness to assist disadvantaged communities. The fourth quarter SFY 2011 IUP update included a list of projects that were identified for additional subsidization.
- At least 20% of the dollars (\$5,515,000) must be used for "green" projects, defined by Congress to include water and energy efficiency, green storm water infrastructure, and other environmentally innovative efforts. The fourth quarter SFY 2011 IUP update included \$21 million worth of green project requests, so Iowa should have no trouble meeting the 20% requirement in the CWSRF. The green applications were evaluated for eligibility using the EPA guidance issued in April 2010, and scored using the CWSRF integrated project priority ranking system. Iowa is also using a portion of the additional subsidization to incentivize innovation through green projects.

The maximum amount of additional subsidization that can be used in the CWSRF is \$13,766,200 (49.2% of the FY 2010 capitalization grant amount). Iowa's total proposed loan forgiveness is approximately \$12 million, or 43%. The project priority list indicates a percentage, rather than dollar amount, for loan forgiveness. The final amount of principal forgiveness will be X percentage of the final amount disbursed on the SRF loan.

For the DWSRF:

- At least 30% of the dollars (\$6,950,700) must be used for “additional subsidization” in the form of grants, loan forgiveness, or negative interest loans. Iowa is using a portion of the loan forgiveness to assist disadvantaged communities. The fourth quarter FY 2011 IUP update included a list of projects that were identified for additional subsidization.
- At least 20% of the dollars (\$4,633,800) must be used for “green” projects, defined by Congress to include water and energy efficiency, green storm water infrastructure, and other environmentally innovative efforts. The fourth quarter FY 2011 IUP update included \$5.6 million worth of green project requests. Additional projects may need to be solicited if any of these projects do not proceed. Iowa is also using a portion of the additional subsidization to incentivize innovation through green projects.

There is no maximum amount of additional subsidization that can be used in the DWSRF. Iowa’s total proposed loan forgiveness is approximately \$7 million, or 30%. If the projects currently identified for additional subsidization do not proceed, other projects may be added. The project priority list indicates a percentage, rather than dollar amount, for loan forgiveness. The final amount of principal forgiveness will be X percentage of the final amount disbursed on the SRF loan.

Under EPA guidance issued on November 30, 2009, Davis-Bacon prevailing wage rates apply to projects funded with SRF loans between November 1, 2009 and September 30, 2010. Davis-Bacon requirements were continued through Congress’ continuing resolutions past the September 30, 2010 date.

### ***SRF Audits and Reporting***

Iowa’s SRF staff are committed to transparency and accountability in the programs. Program information and Intended Use Plans are posted on the SRF web site at [www.iowaSRF.com](http://www.iowaSRF.com). All program plans and rules go through public review and comment and approval by the Iowa Environmental Protection Commission. An independent audit, conducted by the State Auditor’s Office, is completed annually. Project and program milestones and information are reported through the EPA’s CWSRF and DWSRF Environmental Benefits and Project Reporting databases on a quarterly basis. An annual report is prepared and published each fall. ARRA project details and compliance were reported weekly prior to February 17, 2010. Since that deadline, jobs and expenditures for ARRA projects are reported quarterly. Iowa will also comply with the new requirements for reporting in the Federal Funding Accountability and Transparency Act (FFATA).

### ***Summary***

Several factors create greater needs for investment in public health and environmental protection: Higher regulatory standards, aging infrastructure, and increased emphasis on environmental protection. The State Revolving Fund continues to be an essential tool for meeting these funding challenges.

The financial capacity of the Iowa SRF is continually analyzed. Using relatively conservative assumptions, it is projected that the Clean Water SRF could loan an average of \$200 million per year over the next 10 years, or a total of \$2 billion. The Drinking Water SRF has the capacity to generate an average of \$100 million for loans per year. If demand outstrips capacity, projects will be prioritized to ensure that SRF loans go to projects with the highest value for public health and environmental protection.



**CLEAN WATER STATE REVOLVING FUND**  
**INTENDED USE PLAN**

**State Fiscal Year 2012**  
**July 1, 2011 – June 30, 2012**

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# CLEAN WATER STATE REVOLVING FUND INTENDED USE PLAN

**State Fiscal Year 2012**  
**July 1, 2011 – June 30, 2012**

## I. INTRODUCTION

The Clean Water State Revolving Fund (CWSRF) is Iowa's primary tool for funding water quality improvements. Since 1989, the Iowa CWSRF has committed more than \$1.2 billion in below-market rate loans to meet Iowa's wastewater infrastructure needs. In addition, since 2003, the program has financed more than \$105 million to address nonpoint source pollution.

This Intended Use Plan (IUP) outlines progress made to date and plans for operating and managing the CWSRF during State Fiscal Year 2012.

## II. STATE FISCAL YEAR 2012 PLAN OF ACTION

The plan is based on anticipated use of new and revolved funds available in the CWSRF for funding water quality protection needs, including both publicly owned wastewater and storm water facilities, and nonpoint source water protection projects.

The CWSRF loan program consists of two main program areas. First, the purchase of debt obligations for wastewater and storm water projects is provided through the CWSRF to publicly owned facilities. Second, direct loans or linked deposit financing approaches address nonpoint source programs.

The SFY 2012 Plan of Action covers the following areas:

- CWSRF goals and objectives;
- Current and projected financial capacity of the CWSRF;
- Financial management strategies;
- Plan for the SFY 2012 project priority list;
- Plan for nonpoint source set-asides; and
- Plan for use of administrative accounts.

### ***CWSRF Goals and Objectives***

The primary long-term goal of the Iowa CWSRF is to protect the environment and public health and welfare through a perpetual financial assistance program. The SFY 2012 short-term goals and objectives are as follows:

- **Goal:** Fund green projects equivalent to 20% of the FFY 2010 capitalization grant.  
**Objectives:** *During SFY 2012, SRF staff will work with green projects identified in the SFY*

2011 IUP to ready them for loans. SRF will apply the stated percentage of loan forgiveness to the loan amount eligible under the green project reserve guidance issued by EPA on April 21, 2010.

- **Goal:** Apply additional subsidization available in FFY 2010 capitalization grant funding to disadvantaged community projects. **Objective:** During SFY 2012 SRF staff will work with disadvantaged communities identified for additional subsidization in the SFY 2011 IUP to ready them for loans. SRF will apply the stated percentage of loan forgiveness to the final loan amount.
- **Goal:** Assist in readying SRF projects for IJOBS grant funding. **Objective:** Projects receiving state IJOBS grants must be eligible for and receive an SRF loan. SRF will work with the IJOBS program to take projects through the SRF process for funding readiness.
- **Goal:** Provide financial assistance that is lower cost than private financing options while assuring the perpetual nature of the program. **Objectives:** During SFY 2012, criteria in program rules will be used to set interest rates in the IUP. Those criteria include the cost of funds to the SRF, availability of other SRF funds, prevailing market interest rates of comparable non-SRF loans, and long-term SRF viability. SRF staff will coordinate efforts with other funders such as the Community Development Block Grant program. During SFY 2012 SRF staff will continue to educate and inform communities and consultants on the financial savings available by using the CWSRF.
- **Goal:** Apply program requirements that are simple and understandable and do not add unnecessary burdens to applicants or recipients. **Objectives:** During SFY 2012 SRF staff will continue to assist applicants with completing the federal cross-cutting requirements for environmental and historical review. Staff will no longer be responsible for Davis-Bacon compliance but will advise borrowers as needed. Borrowers will be responsible for compliance and may hire outside consultants to assist.
- **Goal:** Continue the option of extended financing terms for CWSRF infrastructure projects. **Objective:** During SFY 2012 this option will be offered to current and new projects on the project priority list. Applicants seeking extended financing must complete a worksheet outlining the anticipated life of the project components, which can be averaged to determine the extended term.
- **Goal:** Maintain mechanisms for funding the on-going administration of the program if federal funding is reduced or eliminated. **Objective:** During SFY 2012 initiation and servicing fees will be collected on CWSRF loans for deposit to administrative accounts. SRF staff will develop short and long-term plans for administrative budgets.
- **Goal:** Commit loan funds to fully fund as many recipients as possible in accordance with the state priority rating system, the IUP, staff resources, and available funding, in order to assist in the construction of projects with the highest water quality impacts. **Objective:** During SFY 2012, quarterly updates to the IUP will be prepared to add projects and update program financial information.
- **Goal:** Manage the CWSRF to maximize its use and impact through sound financial management. **Objective:** During SFY 2012 SRF staff and financial advisors will continue to conduct financial analysis and develop innovative approaches to financial management.

- **Goal:** Implement programs that effectively address water quality needs and target appropriate audiences. **Objective:** During SFY 2012 SRF staff will continue to educate users and potential users about the program offerings through presentations, displays, program materials, and the IowaSRF.com website.

### ***Current and Projected Financial Capacity of the CWSRF***

Appendix A, the Estimated Sources and Uses table, shows that funds are obtainable to fund current requests as of April 2011. The Iowa CWSRF program uses its equity fund to originate loans. When a sufficient number of loans have been made, the SRF program issues bonds, backed by those CWSRF loans, and uses the bond proceeds to replenish the equity fund. IFA issued bonds totaling \$292 million in December 2010. This bond issue included new funds for loan disbursements, state match funds, and refunding of previous issues at lower interest. It is anticipated that additional leveraging will be needed in SFY 2012, and any state match bonds needed would be issued at that time.

The leveraging capacity of the CWSRF is robust due to the maturity of the fund and the current loan portfolio. SRF staff have analyzed the future financial capacity of the CWSRF in light of the discussion over water quality standards and other future wastewater needs. Using relatively conservative assumptions, it is projected that the CWSRF could loan an average of \$200 million per year over the next 10 years, or a total of \$2 billion.

### ***Financial Management Strategies***

Charts 1, 2, and 3 (attached) show total loan requests and administrative set-asides of \$605 million. This includes \$572 million in loan requests for wastewater projects. Because many of these projects are in the planning phase, they are not expected to sign a binding loan commitment during this fiscal year. The projected timing and demand for loan draws is reflected in the sources and uses table (Appendix A). The list also includes \$29.5 million for nonpoint source set-asides, and \$3.8 million for ongoing program administration.

The sources of funds for this IUP include federal capitalization grant funds available to Iowa for Federal Fiscal Years (FFY) 2010 and 2011. Iowa's SRF uses the "leveraging-all project" method for drawing federal capitalization grant funds. The federal funds will be drawn using the 83.3:16.7 proportionality ratio.

### ***SFY 2012 Project Priority List***

The management of the CWSRF program includes a priority list of projects for loan assistance, which has been developed according to DNR rules 567 IAC 92 (455B). The CWSRF priority ranking system, as outlined in DNR rules 567 IAC 91 (455B) was updated during SFY 2010. All of the projects on the CWSRF priority list have been rescored using the new criteria.

With the available CWSRF funds, this IUP provides a projection of loan funding assistance for applications in priority order determined by point source rating criteria defined in 567 IAC 91 (455B). This priority list may be amended on a quarterly basis as needed during SFY 2012. Chart 1 (attached) constitutes the project priority list.

The priority list has two major categories of projects: fundable and contingency. Fundable projects are defined as those that are following the wastewater construction permitting process and are making substantial progress toward fulfilling the permitting and SRF requirements. Contingency projects are those that have not followed the permitting process or are not moving toward funding readiness.

For program planning purposes, the fundable projects are further identified as “R – ready for loan” (indicating that the construction permit and environmental review have been completed), and “P – in planning.”

The following categories of projects will be included for funding during SFY 2012 and are included on Chart 1:

**Unfunded Prior Years’ Section 212 Projects:** These are loan requests remaining on the project priority list from previous years’ IUPs. It is Iowa’s intention to make CWSRF loans to these projects during SFY 2012 if they are ready for a binding loan commitment.

**Segments of Previously Funded Section 212 Projects.** State rules provide that subsequent segments of a project, which has previously received funding priority or assistance, be placed on the project priority list ahead of new projects. Segmented projects will be added to the SFY 2012 project priority list as received.

**New Section 212 Projects.** New applications for assistance during SFY 2012 will be added to the project priority list. Applications will be accepted on a continuous basis during SFY 2012 with quarterly updates completed as needed.

**Supplemental Financing.** Supplemental financing for projects listed in previously approved IUPs are added to the IUP as they are requested unless the additional funds will be used for improvements that would significantly change the scope of the project. Additional environmental review may be required. Supplemental loans will not be provided for changes that are ineligible for funding.

**Contingency Projects.** Contingency projects are those that have not followed the permitting process or are not moving toward funding readiness. Projects can be moved from contingency to active status whenever they are determined to be in sync with the permitting process or have become active. An active project can be moved to contingency status if it is determined that the project is not progressing in a timely manner.

**Planning and Design Loans.** Planning and design loans are provided at 0% interest for up to three years to cover the costs of preparing facility plans and project specifications. The loans will be rolled into CWSRF construction loans or repaid by another source of permanent financing.

**ARRA Projects.** Iowa’s list of ARRA projects was published in a supplement to the SFY 2009 IUP and approved in May 2009. These projects had to be under contract or under construction, certified for ARRA funding, with a signed loan agreement by February 17, 2010. Disbursements for some of these projects will continue into SFY 2012.

**FFY 2010 Funding.**

Iowa solicited green projects which were identified in the SFY 2011 fourth quarter IUP update and listed in this IUP. Iowa intends to use at least 20% of the equivalent amount of the FFY 2010 capitalization grant for green projects. Disadvantaged communities’ projects identified to receive loan forgiveness to meet the requirements of the FFY 2010 capitalization grant were also identified in SFY 2011 and are listed in this IUP update.

***Plan for Nonpoint Source Set-Asides***

Iowa authorizing legislation and state administrative rules allow the use of CWSRF funds for nonpoint source pollution control projects. Four set-asides for nonpoint source program assistance have been established which target areas of need allowed under federal guidance and identified in the state

water quality management plan. The Stormwater Best Management Practices program is included in the General Nonpoint Source set-aside.

The table below outlines the current and proposed set-aside amounts planned for the four programs. Chart 2 (attached) also provides the set-aside funding amounts. These set-aside amounts may be amended based on need and the financial capacity of the CWSRF. Additional information on these programs is included in Section III of this IUP.

<b>Program</b>	<b>Proposed SFY 2012 Set-Aside Amount</b>
Onsite Wastewater Assistance Program (OSWAP)	\$1.5 million
Local Water Protection Program (LWPP)	\$8.0 million
Livestock Water Quality Facilities Program (LWQ)	\$10.0 million
General Nonpoint Source Program (GNS)	\$10.0 million
<b>TOTAL</b>	<b>\$29.5 million</b>

**Plan for Use of Administrative Accounts**

There are three distinct funding sources for CWSRF administrative expenses:

- The CWSRF administrative set-aside. Four percent of the cumulative amount of federal capitalization grants received may be used for program administration and is shown in Chart 3.
- Loan initiation fees. A 1% loan origination fee is charged on CWSRF loans. Under EPA rules, because Iowa’s origination fees are financed through the loans, the proceeds are considered program income. Program income can only be used for the purposes of administering the CWSRF program or for making new loans.
- Loan servicing fees. A fee of 0.25% on principal is charged annually on CWSRF loans. Under EPA rules, only servicing fees charged on loans made above and beyond the amount of the capitalization grant and fees collected after the capitalization grant under which the loan was made has been closed are considered non-program income. Non-program income can be used to administer the program or for other water quality purposes.

**Program income.** As of April 2011, there is approximately \$6 million in the fee account encompassing program income. A portion of these funds will be used in SFY 2012 for program administration, and the remainder will be reserved for future administrative expenses.

**Non-Program Income.** After expenses in SFY 2011, there is currently \$3 million available in funds considered non-program income. We propose the following uses for a portion of these funds during SFY 2012:

<b>Purpose</b>	<b>Explanation</b>	<b>Amount</b>
To provide funding and support for efforts to assist unsewered communities	Many rural communities in Iowa provide little or no wastewater treatment. Discharge of untreated or partially treated waste presents a significant human health risk and potentially degrades ground and surface water quality. Viable waste treatment solutions are difficult and costly, often exceeding the local capacity for planning, financing, and management.  Regional utility management organizations (UMOs) are stepping up to fill this void and address issues of leadership, financial capacity, operations, and delivery of services. Four UMOs were funded in SFY 2007, five in	\$250,000

	SFY 2008, and six in SFY 2009. DNR renewed the six contracts in SFY 2010 for \$25,000 each. DNR plans to renew five of the contracts again in SFY 2012 and restore the funding amount to \$50,000 each.	
To support wastewater compliance activities	SRF non-program income will be used in place of state general fund dollars for eight field office wastewater staff positions. The field offices will be doing inspections to ensure compliance with the NPDES permit, assisting permit holders with staying in compliance with their permit, investigating complaints from the public related to wastewater treatment and offering technical assistance to wastewater facility operators. Another task is working with unsewered communities to become properly sewerred.	\$796,500
To support the LiDAR project	LiDAR, which stands for Light Detection and Ranging, is a new technology that creates an interactive topographic map with elevation data accurate within eight inches. As a supplement to field surveys, LiDAR can be used for watershed planning and construction. It can also be used to evaluate alternative infrastructure options, for education and research purposes, and in engineering.	\$50,000
To provide staffing in the Water Quality Bureau	This funding will replace state general funds for a staff engineer in the Wastewater Engineering section, a permit writer in the National Pollution Discharge Elimination System (NPDES) section, and other staff as needed.	\$338,935
To develop a wasteload allocation tracking database	Wasteload allocation calculations are needed to implement Water Quality Standards in wastewater construction and NPDES permits. This project will create a web-based database with electronic submission and document storage.	\$125,000
To provide state matching funds for a federal grant	The Department of Natural Resources has applied for funding for a pilot project to restore wetland complexes in the Iowa-Cedar River Basins. These funds will leverage a total of \$5.5 million worth of watershed protection.	\$240,000
	<b>TOTAL</b>	<b>\$1,800,435</b>

### III. INFORMATION ON THE CWSRF ACTIVITIES TO BE SUPPORTED

#### ***Allocation of Funds***

Allocation of funds to eligible projects was based on a four-step process:

1. The amount of financial assistance needed for each application was estimated;
2. The sources and allowable uses of all CWSRF funds were identified; and
3. The CWSRF funds were allocated among the projects, consistent with the amount available and the financial assistance needed.
4. A designated amount was selected as reasonable and manageable for each set-aside.

Information pertinent to each CWSRF project is contained in Chart 1, pursuant to Section 606(c)(3) of the Clean Water Act.

### ***Sources and Uses of Available CWSRF Funds***

Appendix A to the Intended Use Plan illustrates potential sources and uses of funds in the CWSRF for SFY 2012. As shown, all pending loan requests and program administration needs can be funded. Appendix A will be updated quarterly as needed to provide an ongoing view of the financial plan for meeting loan requests during SFY 2012.

The Iowa CWSRF program uses its equity fund to originate loans. When the number of loans that have been made creates a need for additional funds, IFA issues bonds, backed by those CWSRF loans, and uses the bond proceeds to replenish the equity fund. IFA issued bonds totaling \$292 million in December 2010. This bond issue included new funds for loan disbursements, state match funds, and refunding of previous issues at lower interest.

### ***Section 212 Projects Program Policies***

**Loan Interest Rates.** The interest rate for construction loans made from the CWSRF in SFY 2012 will be 3%. Interest rate for CWSRF planning and design loans will be 0% for up to three years.

In addition, interest rates for existing CWSRF loans that are at or beyond their 10-year point are reduced to 3%.

**Loan Fees.** A 1% origination fee is charged on the full loan amount for CWSRF construction loans. No origination fees will be charged on planning and design loans. A .25% servicing fee will be charged on construction loans.

**Financing Term.** The financing term will be up to 30 years. Current and new projects on the project priority list may request an extended term. The length of the term will be based on calculation of the average useful life of the entire project, to be determined by the applicant's consulting engineer and approved by DNR.

**Maximum Financing.** There is no maximum financing amount.

**Project Readiness.** Applicants cannot be offered assistance until they meet program requirements.

**Funding Limitations.** Pending loans identified in this IUP do not exceed funds obtainable for the CWSRF program. These estimates are based on the projections that, for projects that have completed program requirements and are ready for funding, only 50% of the loan amount will be disbursed this fiscal year. For projects that are currently in the planning phase but will be ready for funding during SFY 2012, it is projected that only 25% of total funds will be disbursed this fiscal year.

### ***Administrative Costs of the CWSRF***

Iowa intends to use CWSRF funds equivalent to 4% of the federal capitalization grant funds to pay the costs of administering the State Revolving Fund loan program. The Iowa SRF program did not take any administrative set-aside from the ARRA capitalization grant. The administrative set-aside of \$2,122,000 from the ARRA cap grant will be taken in SFY 2012.

Any unused administration commitments are reserved for use in future years as necessary should capitalization grants be reduced, or actual costs increase.

### ***Nonpoint Source Set-Aside Programs***

Four programs target several areas to help Iowans address nonpoint source pollution, including:

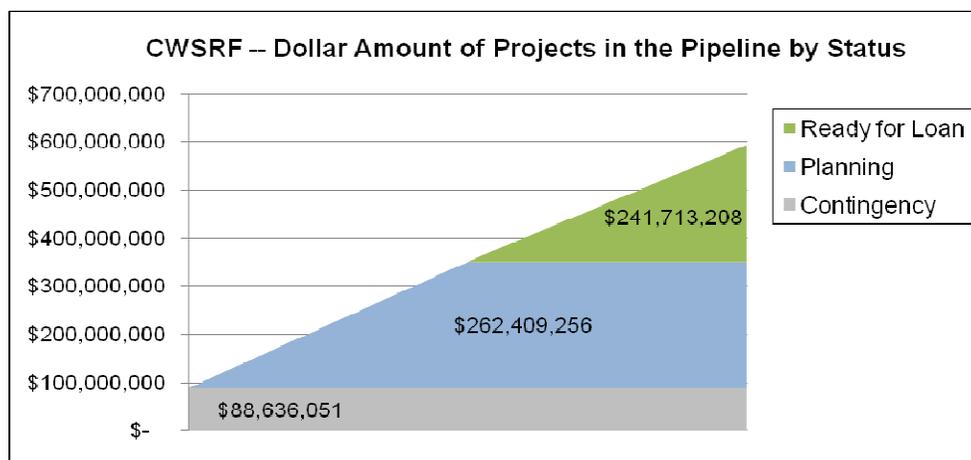
- The On-Site Wastewater Systems Assistance Program (OSWAP), providing loans to rural homeowners to replace inadequate septic systems. New systems are certified by county sanitarians and loans are made through participating lenders.
- The Local Water Protection (LWP) Program, addressing soil, sediment, and nutrient control practices on agricultural land. DNR contracts with the Iowa Department of Agriculture and Land Stewardship, which operates the program through local Soil and Water Conservation Districts. Loans are made through participating lenders through a linked deposit arrangement.
- The Livestock Water Quality Facilities (LWQ) Program, assisting livestock producers with manure management plans, structures, and equipment. Facilities with under 1,000 animal unit capacity are eligible. DNR contracts with the Iowa Department of Agriculture and Land Stewardship, which operates the program through local Soil and Water Conservation Districts. Loans are made through participating lenders through a linked deposit arrangement.
- The General Nonpoint Source (GNS) Program, for a wide variety of other water quality protection efforts. Projects include habitat and wetland restoration, landfill closure, lake restoration, and watershed planning. A sub-program addresses urban storm water management for water quality.

Nonpoint source set-asides total \$29.5 million, including new projects and carryover projects from SFY 2011.

**Plan for Efficient and Timely Use of CWSRF Funds**

In recent years, the CWSRF has been opened to new uses, its processes streamlined, and the marketing and education enhanced. These improvements have resulted in more efficient and timely use of the CWSRF.

The chart below shows the dollar amount of projects in the loan pipeline by their status (contingency, planning, or ready for a loan).



**Water Quality Management Planning**

A reserve for water quality management planning as required by Title VI of the Clean Water Act will be set aside from Iowa’s Title VI allotments and granted to the state for this purpose separately from the CWSRF. This reserve does not appear in this IUP as it has been already deducted from Iowa’s allotment and taken into account in projecting Iowa’s available capitalization grant.

## **IV. ASSURANCES AND SPECIFIC PROPOSALS**

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the U.S. EPA. Iowa's Operating Agreement was amended in April 2007.

## **V. CRITERIA AND METHOD FOR DISTRIBUTION OF FUNDS**

The following approach was used to develop Iowa's proposed distribution of CWSRF funds: (1) analysis of the priority of communities applying and financial assistance needed; (2) identification of the sources and spending limits of available funds; (3) allocation of funds among projects; (4) development of a payment schedule which will provide for making timely binding commitments to the projects selected for CWSRF assistance; and (5) development of a disbursement schedule to pay the project costs as incurred.

### ***Priority of Communities and Financial Assistance Needed***

Iowa law provides only for loan assistance. Additional subsidization required by the FFY10 capitalization grant will be through forgivable loans. The state's CWSRF rules identify the priority rating system used to establish priorities for loan assistance. Chart 1 is the state's Project Priority List.

### ***Nonpoint Assistance Programs***

Chart 2 (attached) includes set-asides for the Onsite Wastewater Assistance Program (OSWAP), Livestock Water Quality Facilities (LWQ), Local Water Protection (LWP) and General Nonpoint Source (GNS). These funds implement the intent of Iowa statute to use CWSRF funds for loan assistance to improve rural residential wastewater systems, to assist owners of existing animal feeding operations to meet state and federal requirements, for local water protection projects that will provide water quality improvement or protection and for general nonpoint source projects that will provide water quality improvements or water quality protection. These systems are addressed as a need by Iowa's State Water Quality Management Plan. Individual loan applicants for all set-asides are not identified in this IUP. These programs will be operated as linked deposit or direct loan programs.

### ***Allocation of Funds Among Projects***

All projects listed in Chart 1 (attached) are eligible for assistance and may be funded from the CWSRF subject to available funds.

All projects scheduled for funding with Iowa's CWSRF will be reviewed for consistency with appropriate plans developed under sections' 205(j), 208, 303(e), 319 and 320 of the Clean Water Act, as amended. Evidence of this review and finding of consistency will be documented in each CWSRF project file. Should a project fail to meet this review criterion, it may be bypassed as allowed by State rules. Chart 1 provides for contingency projects, which may be considered for loan assistance as bypass projects according to state rules without formal amendment of this intended use plan.

## **VI. METHOD OF AMENDMENT OF THE INTENDED USE PLAN**

This IUP will be followed by the State in administering CWSRF funds in SFY 2012. Federal and state law requires, and Iowa welcomes, opportunity for public participation in the development of the IUP. Any revisions of the goals, policies and method of distribution of funds, must be addressed by a revision of the IUP, including opportunity for public participation. Updates to the IUP to add projects to the priority list, to make program changes, or to adjust dollar amounts in set-asides, will be made

quarterly as needed. Minor adjustments in funding schedules, loan amounts and use of bypass provisions including funding of projects on contingency status are allowed by the procedures of this IUP and state rules for administration of the CWSRF without public notification.

## **VII. PUBLIC REVIEW AND COMMENT**

A public meeting to allow input to Iowa's SFY 2012 IUP and Project Priority List was held May 12, 2011, 10:00 a.m., at the DNR Water Supply office, 401 SW 7<sup>th</sup> Street, Suite M, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. Notice of this meeting was published in the Des Moines Register, a statewide newspaper, on April 7, 2011. The public comment period was open until May 19, 2011. Written comments were received from the U.S. Environmental Protection Agency Region 7 SRF staff and changes were made to the IUP in response.

## **CHARTS**

Charts 1-3 are included in a separate, sortable Excel file.

## APPENDIX A

### Iowa CWSRF State Fiscal Year 2012 1Q

Estimated Funding Sources and Funding Uses

As of 4/20/11

#### Funding Sources

Funds Available in Equity and Loan Accounts	\$116,985,000	*
<b>2009 ARRA Grant</b> - Section 212 Loans	\$5,634,000	*
<b>2009 ARRA Grant</b> - Section 212 Forgivable Loans	\$852,000	*
<b>2009 ARRA Grant</b> - Green Projects Loans	\$2,502,000	*
<b>2009 ARRA Grant</b> - Green Projects Forgivable Loans	\$263,000	*
<b>FFY 2010 Capitalization Grant</b>	\$18,337,000	*
<b>FFY 2011 Capitalization Grant</b> (Estimated)	\$20,000,000	
<b>State Match for FFY 2011 Capitalization Grant</b> (Estimated)	\$4,000,000	
Issuance of Leveraged Bonds (Series 2012 - Estimated 4/12)	\$180,044,000	
Equity Fund Interest Earnings during SFY 2012	\$129,000	
Loan Repayments	\$62,394,000	
Funds Released from Indentures to Equity Fund (available for loans)	\$8,563,000	
<b>Total Funding Sources</b>	<b>\$419,703,000</b>	

#### Funding Uses

Undisbursed Amounts Committed to Existing Loans (75% disbursement rate)	\$131,196,000
Section 212 Project Requests (FNSI/CX issued; 50% disbursement rate)**	\$123,496,000
Section 212 Project Requests (FNSI/CX not issued; 25% disbursement rate)**	\$78,248,000
Planning & Design Requests (50% disbursement rate)	\$5,272,000
Green Projects - ARRA	\$2,765,000
Non-Point Source Program Assistance	\$29,500,000
Principal Payments on Outstanding Bonds	\$22,685,000
Interest Payments on Outstanding Bonds	\$22,755,000
Program Administration From FFY 2010 Capitalization Grant	\$864,000
Program Administration From FFY 2011 Capitalization Grant (Estimated)	\$800,000
Program Administration From ARRA Capitalization Grant	\$2,122,000
<b>Total Funding Uses</b>	<b>\$419,703,000</b>

\* Funds Available for disbursements as of 4/20/11

\*\* Loan disbursement rates are estimated based on previous experience with project pace. For projects that currently have not had a Finding of No Significant Impact or Categorical Exclusion issued, it is expected that up to 25% of the total project amounts may be disbursed during SFY 2012 once environmental review is completed, construction permit issued, and binding loan commitment signed. For those projects with FNSI/CX clearance, the disbursement rate is estimated at 50% of the loan request amount.

## **APPENDIX B-1 PROCEDURES TO DETERMINE SECTION 212 PROJECT PRIORITY LIST**

Project rankings were determined by the following procedures:

Cost eligibility of projects was determined as per 567 IAC 92.7(6)(455B). Applications were evaluated using the priority point system in 567 IAC 91.8(455B).

The final project priority list for a fiscal year's project pool is compiled in the following manner: subsequent segments of projects funded by CWSRF loan programs of previous years will be ranked at the top; projects ranked in the current year application group will then be added.

Projects on the project priority list will be given contingency status should the total amount of needs exceed the year's CWSRF staff resources capability and loan funding or if the projects have not met the fundable criteria described in 567 IAC 92.6(2)(455B) . Projects will be funded from the top down in the ranking order of the project priority list. Projects are ranked similarly in the contingency project list. The top project in the contingency list can be moved to the funding list when funds are available or it has met the fundable criteria. Funds can be made available due to a number of reasons including project bypasses, loan application withdrawal of other projects, reduction in loan amount requests, an increase in available funds, or progress in meeting program requirements.

## **APPENDIX B-2 CRITERIA TO DETERMINE PROJECT PRIORITY LIST**

In April 2010 Iowa adopted revised rules for the Clean Water State Revolving Fund (CWSRF). 567 IAC 91 provides the criteria for scoring and ranking CWSRF projects. The new system uses an integrated approach which allows comparison of Section 212 POTW (publicly owned wastewater treatment works) projects as well as nonpoint source pollution control projects. The goal of the new system is gain the highest water quality benefits for the funding available.

Currently Iowa is able to fund all projects that are eligible, but the priority system will be available to use in the case that demand for CWSRF loans exceeds supply of funds.

### **Section 212 POTW Projects**

The rating criteria consider the use classification of the receiving waters, water quality of the receiving waters, groundwater protection, project type, project purpose, and a tiebreaker; defined in 567 IAC 91.8 (455B). Priority ranking for the projects shall be based on the total points awarded for all the categories; the greater the total number of points, the higher the ranking. The ranking will be done at the time the IUP is prepared and will not be updated during the year. The tie breaker category will be used when necessary.

### **Nonpoint Source Set-Aside Programs**

The rating criteria consider the use classification of the receiving waters, water quality of the receiving waters, groundwater protection, project type, project purpose, and a tiebreaker; defined in 567 IAC 91.8 (455B). Priority ranking for the projects is based on the total points awarded for all the categories; the greater the total number of points, the higher the ranking. The priority system for nonpoint source will not be implemented until 90 percent of a nonpoint source set-aside is allocated and no additional funds are available. If that occurs, ranking will be done at the time that a new project application is received.



**DRINKING WATER STATE REVOLVING FUND**  
**INTENDED USE PLAN**

**State Fiscal Year 2012**  
**July 1, 2011 – June 30, 2012**

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# DRINKING WATER STATE REVOLVING FUND INTENDED USE PLAN

**State Fiscal Year 2012**  
**July 1, 2011 – June 30, 2012**

## I. INTRODUCTION

The Drinking Water State Revolving Fund (DWSRF) is Iowa's primary tool for funding improvements to public water systems. Since 2000, the Iowa DWSRF has committed \$491 million in below-market rate loan funds to meet Iowa's water system infrastructure needs.

This Intended Use Plan (IUP) outlines progress made to date and plans for operating and managing the DWSRF during State Fiscal Year 2012.

## II. STATE FISCAL YEAR 2012 PLAN OF ACTION

This plan is based on anticipated use of new and revolved funds available in the DWSRF for funding construction of treatment plants or improvements to existing facilities, water storage facilities, wells, and source water protection efforts.

The SFY 2012 Plan of Action covers the following areas:

- DWSRF goals and objectives;
- Current and projected financial capacity of the DWSRF;
- Financial management strategies;
- Plan for the SFY 2012 project priority list;
- Plan for use of DWSRF set-aside funds; and
- Plan for use of administrative accounts.

### ***DWSRF Goals and Objectives***

The primary long-term goal of the Iowa DWSRF is to support the protection of public health through a perpetual program of financial assistance for the purposes of ensuring the provision of an adequate quantity of safe drinking water to consumers of public water supplies, protecting source water for drinking water systems, and ensuring the long-term viability of existing and proposed water systems.

The SFY 2012 short-term goals and objectives are as follows:

- **Goal:** Fund green projects equivalent to 20% of the FFY 2010 capitalization grant.  
**Objectives:** *During SFY 2012, SRF staff will work with green projects identified in the SFY 2011 IUP to ready them for loans. SRF will apply the stated percentage of loan forgiveness to the loan amount eligible under the green project reserve guidance issued by EPA on April 21, 2010.*

- **Goal:** Apply additional subsidization available in FFY 2010 capitalization grant funding to disadvantaged community projects. **Objective:** *During SFY 2012 SRF staff will work with disadvantaged communities identified for additional subsidization in the SFY 2011 IUP to ready them for loans. SRF will apply the stated percentage of loan forgiveness to the final loan amount.*
- **Goal:** Assist in readying SRF projects for IJOBS grant funding. **Objective:** *Projects receiving state IJOBS grants must be eligible for and receive an SRF loan. SRF will work with the IJOBS program to take projects through the SRF process for funding readiness.*
- **Goal:** Ensure that borrowers are able to provide safe drinking water at a reasonable cost for the foreseeable future. **Objectives:** *During SFY 2012, viability assessments will be completed by each applicant and reviewed by SRF staff prior to signing of the loan agreement. Systems determined nonviable will be provided with an enforceable compliance schedule listing all actions that must be completed to return the system to viable status. Extended term financing will be offered to disadvantaged communities. SRF staff will coordinate efforts with other funders such as the Community Development Block Grant program. We will continue to educate and inform public water supplies, engineering consultants, and financial advisors on the financing savings available by using the DWSRF.*
- **Goal:** Provide below-market rate financial assistance while assuring the perpetual nature of the program. **Objective:** *During SFY 2012, criteria in program rules will be applied to set interest rates in the IUP, including cost of funds to the SRF, availability of other SRF funds, prevailing market interest rates of comparable non-SRF loans, and long-term SRF viability.*
- **Goal:** Apply program requirements that are simple and understandable and do not add unnecessary burdens to applicants or recipients. **Objectives:** *During SFY 2012, SRF staff will continue to provide environmental review services, conduct project meetings, provide technical assistance for meeting federal requirements, and update the water supply manual and web-site as needed. Staff will no longer be responsible for Davis-Bacon compliance but will advise borrowers as needed. Borrowers will be responsible for compliance and may hire outside consultants to assist.*
- **Goal:** Commit loan funds to fully fund as many recipients as possible in accordance with the state priority ranking system, the IUP, staff resources, and available funding. **Objectives:** *During SFY 2012, quarterly updates to the IUP will be prepared to add projects and update program financial information.*
- **Goal:** Manage the DWSRF to maximize its use and impact through sound financial management. **Objective:** *During SFY 2012 SRF staff and financial advisors will continue to conduct financial analyses and develop innovative approaches to financial management.*
- **Goal:** Maintain mechanisms for funding the on-going administration of the program if federal funding is eliminated or reduced. **Objectives:** *During SFY 2012 initiation and servicing fees will be collected on DWSRF loans for deposit to administrative accounts. SRF staff will develop short and long-term plans for administrative budgets.*

#### **Current and Projected Financial Capacity of the DWSRF**

Appendix A, the Estimated Sources and Uses table, shows that available funds are sufficient to fund current requests.

SRF staff has analyzed the future financial capacity of the DWSRF. Using relatively conservative assumptions, it is projected that the DWSRF could loan an average of \$100 million per year over the next 10 years, or a total of \$1 billion.

### ***Financial Management Strategies***

The sources of funds for this IUP include the FFY 2010 federal capitalization grants received and matched. The amount of the FFY 2011 cap grant was estimated. Iowa's SRF uses the "leveraging – all projects" method for drawing federal capitalization grant funds. The federal funds will be drawn using the 79.6:20.4 proportionality ratio. IFA issued bonds totaling \$292 million in December 2010. This bond issue included new funds for loan disbursements, state match funds, and refunding of previous issues at lower interest. It is anticipated that additional leveraging will be needed in SFY 2012, and any state match bonds needed would be issued at that time.

### ***SFY 2012 Project Priority List***

The management of the DWSRF program, including development of a project priority list for financing assistance, was developed according to Part 567 of the Iowa Administrative Code (IAC), Chapter 44. This amended IUP indicates the intent to provide funds to projects ranked in priority order according to scoring criteria contained in Chapter 44 of the IAC. Chart 1 constitutes the State's project priority list.

In the event that projects identified for funding in the IUP do not attain readiness for a loan commitment by projected dates, these delayed projects may be bypassed. Other projects may be added to Chart 1 to be funded based on the State's implementation rules for the DWSRF program (567 IAC 44). Applications that are in excess of available DWSRF assistance or that are unable to enter binding commitments within one year may be placed on the Contingency status according to priority.

Projects will be funded as ranked on the project priority list. Adjustment to the list of fundable projects will be made, if necessary, to assure that at least 15% of the project funds are available to systems serving fewer than 10,000 persons as specified in Section 1452(a) (2) of the Act. Financing may be provided for up to 100% of project costs if the costs are eligible for funding based on engineering, environmental, and financial review and project readiness to proceed as described above.

The priority list has two major categories of projects: fundable and contingency. Fundable projects are defined as those are likely to be ready for a loan during the current fiscal year. Contingency projects are those that will not be ready for a loan during the current fiscal year.

For program planning purposes, the fundable projects are further identified as "R – ready for loan" (indicating that the construction permit and environmental review have been completed), and "P – in planning."

The following categories of projects will be included for funding during SFY 2012:

**Unfunded Prior Years' Projects.** All projects from prior years that have not entered into a binding commitment are included in this IUP.

**Segments of Previously Funded Projects.** State rules provide that subsequent segments of a project which has previously received funding priority or assistance be placed on the project priority list with the original project score.

**New Projects.** New applications for assistance during SFY 2012 will be added to the project priority list. Applications will be accepted on a continuous basis and quarterly updates completed as needed.

**Supplemental Financing.** Supplemental financing for projects listed in previously approved IUPs are added to the IUP as they are requested unless the additional funds will be used for improvements that would significantly change the scope of the project. Additional environmental review may be required. Supplemental loans will not be provided for changes that would lower the original score of the project to a point where the application is no longer competitive or is ineligible for funding.

**Contingency Projects.** Projects on contingency status have indicated they do not expect to enter into binding commitments during SFY 2012. These projects may be moved to fundable status if their schedules indicate they will require funding during SFY 2012.

**Planning and Design Loans.** Requests for planning and design loans are listed on Chart 1 but have not been assigned priority points.

**Source Water Protection Loans.** Applications from eligible public water supplies with approved SWP plans will be added when the proposed project is a component of the SWP plan.

**ARRA Projects.** Iowa's list of ARRA projects was published in a supplement to the SFY 2009 IUP and approved in May 2009. These projects had to be under contract or under construction, certified for ARRA funding, with a signed loan agreement by February 17, 2010. Disbursements for a small number of these projects may continue into SFY 2012.

**FFY 2010 Funding.** Several green projects that were not funded through ARRA were added to the DWSRF priority list during the first quarter of SFY 2011. Iowa solicited additional green projects which were identified in the SFY 2011 fourth quarter IUP update and listed in this IUP. Iowa intends to use at least 20% of the equivalent amount of the FFY 2010 capitalization grant for green projects. Disadvantaged communities' projects identified to receive loan forgiveness to meet the requirements of the FFY 2010 capitalization grant were also identified in SFY 2011 and are listed in this IUP update.

### **III. INFORMATION ON THE DWSRF ACTIVITIES TO BE SUPPORTED**

#### ***Allocation of Funds***

Allocation of funds to eligible projects is based on a three-step process:

1. The amount of financial assistance needed for each application is estimated;
2. The sources and spending limits for all DWSRF funds are identified; and
3. The DWSRF funds are allocated among the projects, consistent with the financial assistance needed.

Information pertinent to each DWSRF project is contained in Chart 1.

#### ***Sources and Uses of Available DWSRF Funds***

Appendix A to this IUP illustrates the potential sources and uses of funds in the DWSRF for SFY 2012. The project needs total in Chart 1 reflects all unfunded needs. All pending requests and program administration needs can be met in SFY 2012.

The Iowa DWSRF program uses its equity fund to originate loans. When the number of loans that have been made creates a need for additional funds, IFA issues bonds, backed by those DWSRF loans, and uses the bond proceeds to replenish the equity fund. IFA issued bonds totaling \$292

million in December 2010. This bond issue included new funds for loan disbursements, state match funds, and refunding of previous issues at lower interest.

### ***DWSRF Loan Policies***

**Loan Interest Rate.** The interest rate for DWSRF construction loans will be 3%. Interest rates for DWSRF planning and design loans will be 0% for up to three years. Interest rates for source water protection loans, which come out of the Other Authorized Uses set-aside, will be 0% for up to 20 years.

**Loan Fees.** A 1% origination fee will be charged on the full loan amount for DWSRF construction and source water protection loans. No origination fees will be charged on planning and design loans. A 0.25% servicing fee will be charged on construction and source water protection loans.

**Maximum Financing.** There is no maximum financing amount.

**Project Readiness.** Applicants cannot be offered assistance until they meet program requirements.

**Funding Limitations.** All program requests for disbursements from DWSRF projects can be met. These estimates are based on the projections that, for projects that have completed program requirements and are ready for funding, only 50% of the loan amount will be disbursed this fiscal year. For projects that are currently in the planning phase but will be ready for funding during SFY 2012, it is projected that only 35% of total funds will be disbursed to the project this fiscal year.

**Disadvantaged Communities.** The Safe Drinking Water Act Amendments of 1996 allow states to provide an extended term for a loan to a disadvantaged community as long as the extended term does not terminate more than 30 years after project completion and the loan term does not exceed the expected design life of the project. The Act defines a disadvantaged community as the service area of a public water system that meets affordability criteria established after public review and comment.

Community public water systems serving populations that contain a majority (51 percent) of Low to Moderate Income (LMI) persons will be considered disadvantaged for the purpose of the DWSRF loan program. Low to moderate income is defined as 80 percent of the median household income in the county or state (whichever is higher) using the most recent federal census or income survey data. Privately owned community public water systems will be considered eligible for disadvantaged community status if an income survey indicates that the service area meets the LMI criteria. Rural water systems will be considered eligible for disadvantaged community status if an income survey indicates that the area benefiting from the improvements meets the LMI criteria. Income surveys must be done according to the protocol specified by the Community Development Block Grant program.

Loans to disadvantaged communities are limited to public water supply infrastructure improvements. Projects eligible for funding from set-asides, such as source water protection projects, are not eligible in accordance with federal program requirements.

Only those portions of a project that have a design life or life cycle of at least 30 years are eligible for repayment schedules exceeding 20 years. The department will use the table of estimated useful lives from EPA's publication 816-R-03-016 to determine the length of the loan for eligible expenses. The consulting engineer for the project will be required to separate and itemize costs so that a weighted maturity may be calculated for loan repayment. The list of itemized costs and expected useful lives will be required prior to signing of the loan agreement.

If a project is not able to enter into a binding commitment in a timely manner, it may be replaced with the next disadvantaged community project that is ready to proceed.

### ***Intended Use of Set-Asides***

States are allowed to take or reserve up to 31% of each federal capitalization grant for a number of activities that enhance the technical, financial, and managerial capacity of public water systems and protect sources of drinking water. The use of the set-asides as well as the loan program is intended to carry out Iowa's goal of ensuring that the drinking water received by 92% of the population served by community water systems meets all applicable health-based drinking water standards through approaches including effective treatment and source water protection.

The amounts are subject to approval by EPA of program workplans. In this IUP, general work efforts are outlined, for update as needed later in the year with potential changes to the workplan. Iowa plans to take or reserve the allowed amount in each set-aside.

There are four set-asides, including:

- Small System Technical Assistance (2% of capitalization grants)
- DWSRF Administration (4%)
- State Program Management (10%), requires a 1:1 match with state funds
- Other Authorized Uses (15%, with no more than 10% to any one activity)

DNR has two options for addressing the amounts available each year in set-asides. Set-aside funds may be reserved for future use, in which case they would be deducted from a future capitalization grant when they are ready to be taken. Funds that are taken from an available capitalization grant must be applied to planned work efforts approved by EPA.

In recent years, DNR has been fully using the set-asides and drawing upon reserved funds due to budget needs for programs and efforts required by EPA that are critical for ensuring public health. Once the reserved amounts are expended, the amounts available for each set-aside will be limited to the percentage allowed out of each capitalization grant. The Other Authorized Uses set-aside cannot be reserved.

**DWSRF Program Administration Set-Aside.** Iowa intends to take this set-aside to pay the costs of administering the State Revolving Fund loan program. Among the uses for the set-aside are:

- Portfolio management, debt issuance, and financial, management, and legal consulting fees;
- Loan underwriting;
- Project review and prioritization;
- Project management;
- Environmental review services;
- Technical assistance to borrowers;
- Development of water supply engineering design standards;
- Database development and implementation; and
- Program marketing and coordination.

Unused commitments are reserved for use in future years as necessary.

**Small System Technical Assistance Set-Aside.** Iowa intends to use DWSRF funds equivalent to 2% of the federal capitalization grant funds to provide technical assistance to public water supplies serving populations of less than 10,000.

Funds from this set-aside will be used this year to provide technical assistance through the issuance of operation permits, monitoring reminders, and assistance for consumer confidence reporting for public water systems serving populations of less than 10,000.

Unused commitments are reserved for use in future years for DNR staff and other purposes as necessary.

**State Program Support Set-Aside.** The primary uses of this set-aside are to assist with the administration of the Public Water Supply Supervision program, to review engineering documents for non-DWSRF construction projects, to determine viability for new systems, and to provide operating permits for public water supplies serving at least 10,000 persons.

Other uses during SFY 2012 include:

- Supporting the SDWIS database and other information technology systems.

Fifty percent of the budget amount will be funded from the capitalization grant and the remaining 50% will be funded from State sources. Unused commitments are reserved for use in future years for DNR staff and other purposes as needed.

**Other Authorized Activities Set-Aside.** The two primary uses of this set-aside in SFY 2012 will be capacity development and source water protection.

Funds are budgeted for efforts related to developing technical, managerial, and financial capacity for Iowa's public water supplies, including:

- Completion of sanitary surveys with viability assessments;
- Provision of technical assistance related to capacity development through the area wide optimization program (AWOP);
- Contracts with five counties to complete sanitary surveys;
- Provision of performance based training for the AWOP program; and
- Contractor assistance with capacity development (viability assessment).

The SWP budget is managed by the DNR Watershed Improvement section, which includes the SWP coordinator position. Activities for SFY 2012 include:

- Updating SWP Phase 1 reports for priority water supplies
- Maintaining and expanding accessibility of source water protection program database
- Initiating four to six Phase 2 plans
- Respond to request for SWP planning development assistance including completion of ground water investigations
- Continue to develop and implement four existing priority source water protection plans
- Complete SWP program outreach activities
- Contract with State or federal agencies at local lever to assist in SWP implementation activities
- Provide SWP raw water monitoring for 4 priority community water supply systems

- Provide Electrode Earth Resistivity Monitoring Equipment

One of the uses of this set-aside is for SWP loans. It is proposed in this IUP to set the interest rate for SWP loans at 0%.

**Plan for Use of Administrative Accounts**

There are three distinct funding sources for DWSRF administrative expenses:

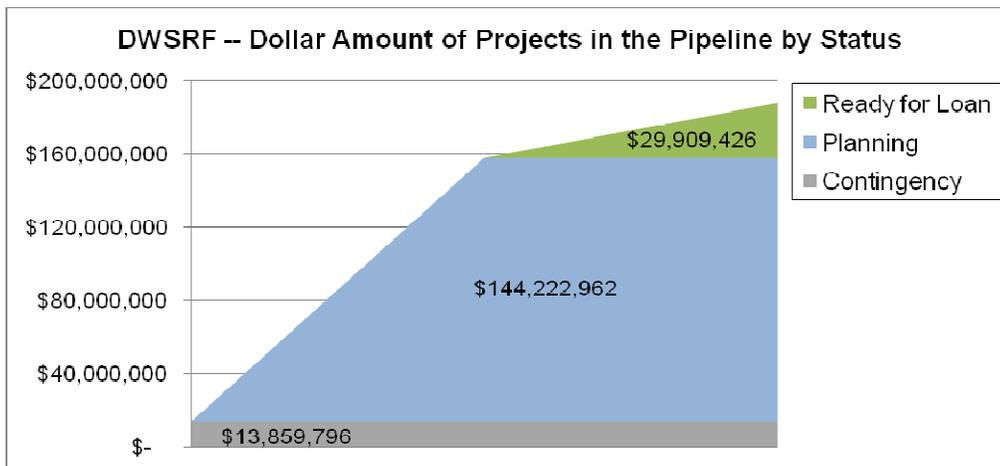
- The DWSRF administrative set-aside. Four percent of the cumulative amount of federal capitalization grants received may be used for program administration as discussed in the set-aside section above.
- Loan initiation fees. A 1% loan origination fee is charged on DWSRF loans. Under EPA rules, because Iowa’s origination fees are financed through the loans, the proceeds are considered program income. Program income can only be used for the purposes of administering the DWSRF program or for making new loans.
- Loan servicing fees. A fee of 0.25% on principal is charged annually on DWSRF loans. Under EPA rules, only servicing fees charged on loans made above and beyond the amount of the capitalization grant and fees collected after the capitalization grant under which the loan was made has been closed are considered non-program income. Non-program income can be used to administer the program or for other safe drinking water purposes.

**Program income.** As of April 2011, there is approximately \$6 million in the fee account encompassing program income. A portion of these funds will be used in SFY 2012 for program administration, and the remainder will be reserved for future administrative expenses.

**Non-Program Income.** After expenses in SFY 2011, there is currently \$2.5 million available in funds considered non-program income. DWSRF non-program income may be used in SFY 2012 to provide part of the required state match for the State Program Management set-aside.

**Plan for Efficient and Timely Use of DWSRF Funds**

In recent years, the processes of the DWSRF have been streamlined, and the marketing and education enhanced. These improvements have resulted in more efficient and timely use of the DWSRF. The chart below shows the dollar amount of projects in the loan pipeline by their status (contingency, planning, or ready for a loan).



#### **IV. ASSURANCES AND SPECIFIC PROPOSALS**

Iowa will provide the necessary assurances and certifications according to the Operating Agreement between the State of Iowa and the U.S. EPA. Iowa's Operating Agreement was amended in April 2007.

#### **V. CRITERIA AND METHOD FOR DISTRIBUTION OF FUNDS**

The following approach was used to develop Iowa's proposed distribution of DWSRF funds: (1) analysis of the priority of communities applying and financial assistance needed; (2) identification of the sources and spending limits of available funds; (3) allocation of funds among projects; (4) development of a payment schedule which will provide for making timely binding commitments to the projects selected for DWSRF assistance; and (5) development of a disbursement schedule to pay the project costs as incurred.

##### ***Priority of Communities and Financial Assistance Needed***

Iowa law provides only for loan assistance. Additional subsidization required by the FFY10 capitalization grant will be through forgivable loans. The state's DWSRF rules identify the priority rating system used to establish priorities for financial assistance. Chart 1 is the state's Project Priority List.

Projects are considered eligible for financial assistance for all planning and project costs providing the project is on the project list of an approved IUP.

##### ***Allocation of Funds among Projects***

All projects listed in Chart 1 are eligible for assistance and may be funded from the DWSRF subject to available funds.

All projects scheduled for funding with Iowa's DWSRF will be reviewed for consistency with the Safe Drinking Water Act, as amended. Should a project fail to meet this review criterion, it may be bypassed or deleted from the funding list. Contingency projects may be considered for assistance as bypass projects according to state rules without formal amendment of this IUP. Projects may be added to Chart 1 in priority order as applications are received.

#### **VI. METHOD OF AMENDMENT OF THE INTENDED USE PLAN**

The State will follow this IUP in administering DWSRF funds in FY 2012. Federal and state law requires, and Iowa welcomes, opportunity for public participation in the development of the IUP. Any revisions of the goals, policies and method of distribution of funds must be addressed by a revision of the IUP, including public participation. Minor adjustments in funding schedules, loan amounts, and use of bypass provisions including funding of projects on the contingency list are allowed by the procedures of this IUP and state rules for administration of the DWSRF without public notification. Adjustments to Chart 1 to utilize actual funds available to the DWSRF for FY 2012 will be considered minor and only affected applicants will be notified. Public notice of amendments will be made if municipalities are added to or removed from Chart 1.

## **VII. PUBLIC REVIEW AND COMMENT**

A public meeting to allow input to Iowa's SFY 2012 IUP and Project Priority List was held May 12, 2011, 10:00 a.m., at the DNR Water Supply office, 401 SW 7<sup>th</sup> Street, Suite M, Des Moines. This meeting was announced in a notice provided to stakeholder organizations representing city officials, consulting engineers, county governments, councils of government, area planning agencies, US EPA Region VII and other groups which might have an interest. Notice of this meeting was published in the Des Moines Register, a statewide newspaper, on April 7, 2011. The public comment period was open until May 19, 2011. Written comments were received from the U.S. Environmental Protection Agency Region 7 SRF staff and changes were made to the IUP in response.

## **CHARTS**

Charts 1-2 are included in a separate, sortable Excel file.

## APPENDIX A

### Iowa DWSRF State Fiscal Year 2012, 1Q

Estimated Funding Sources and Funding Uses

As of 4/20/11

#### Funding Sources for Loans

Funds Available in Equity and Loan Accounts	\$39,522,000	*
<b>2009 ARRA Grant - Loans</b>	<b>\$130,000</b>	<b>*</b>
<b>2009 ARRA Grant - Forgivable Loans</b>	<b>\$110,000</b>	<b>*</b>
<b>2009 ARRA Grant - Green Projects Loans</b>	<b>\$0</b>	<b>*</b>
<b>2009 ARRA Grant - Green Projects Forgivable Loans</b>	<b>\$454,000</b>	<b>*</b>
<b>FFY 2010 Capitalization Grant</b> available for loans	<b>\$18,067,000</b>	<b>*</b>
<b>State Match for FFY 2010 Capitalization Grant</b>	<b>\$234,000</b>	<b>*</b>
<b>FFY 2011 Capitalization Grant</b> available for loans (Estimated)	<b>\$11,040,000</b>	
<b>State Match for FFY 2011 Capitalization Grant (Estimated)</b>	<b>\$3,200,000</b>	
Issuance of Leveraged Bonds (Series 2012 - Estimated 4/12)	\$31,080,000	
Equity Fund Interest Earnings during SFY 2011	\$76,000	
Loan Repayments	\$28,802,000	
Funds Released from Indentures to Equity Fund (available for loans)	\$4,762,000	
<b>Total Funding Sources for Loans</b>	<b>\$137,477,000</b>	

#### Funding Uses for Loans

Undisbursed Amounts Committed to Existing Loans (75% disbursement rate)	\$38,540,000
Project Requests (FNSI/CX issued; 50% disbursement rate)**	\$30,773,000
Project Requests (FNSI/CX not issued; 35% disbursement rate)**	\$40,998,000
Planning & Design Requests (50% disbursement rate)	\$3,931,000
Green Projects - ARRA	\$454,000
Principal Payments on Outstanding Bonds	\$11,285,000
Interest Payments on Outstanding Bonds	\$11,496,000
<b>Total Funding Uses for Loans</b>	<b>\$137,477,000</b>

\* Funds Available for disbursements as of 4/20/11

\*\* Loan disbursement rates are estimated based on previous experience with project pace. For projects that currently have not had a Finding of No Significant Impact or Categorical Exclusion issued, it is expected that up to 35% of the total project amounts may be disbursed during SFY 2012 once the environmental review is completed, construction permit issued, and binding loan commitment signed. For those projects with FNSI/CX clearance, the disbursement rate is estimated at 50% of the loan request amount.

**Funding Sources for Set Asides**

Available Balance under Existing Capitalization Grants for set asides:

Administration	\$1,467,000
Small Systems Technical Assistance	\$552,000
State Program	\$915,000
Other Authorized Activities	\$5,408,000

**Total Funding Sources for Set Asides** \$8,342,000

**Funding Uses for Set Asides**

Set Asides: Administration	\$1,467,000
Small Systems Technical Assistance	\$552,000
State Program	\$915,000
Other Authorized Activities	\$5,408,000

**Total Uses for Set Asides** \$8,342,000

## **APPENDIX B PROCEDURES TO DETERMINE PROJECT PRIORITY LIST**

Project rankings were determined by the following procedures:

- Eligibility of applications were determined by needs criteria identified in IAC 567—44.7(8). In general, most water source, treatment and distribution system improvements are considered eligible.
- Project applications received during the FY 2012 application period were considered for funding in FY 2012; if not funded by the end of FY 2012, these projects will be moved to the FY 2013 project priority list.
- The priority ranking is a total score developed using the scoring criteria listed in IAC 567—44.7(8). Points may be gained in each of five categories: Water Quality and Human Health Risk-Related Criteria (60 point maximum), Infrastructure and Engineering-Related Improvement Criteria (35 point maximum), Affordability Criteria (10 point maximum), Special Category Improvements (15 point maximum), and IDNR Adjustment Factor for Population (10 points). The combined score provides a numerical measure to rank each project within its pool. A project with a larger number receives higher priority.
- The final project priority list for a fiscal year's project pool is compiled in the following manner: Subsequent segments of projects funded by DWSRF loan programs of previous years will retain their original score and be added to the list of the current year's applications.
- Loan-eligible projects submitted will be placed on the IUP each calendar quarter. If the project is anticipated to proceed during FY 2012, the project will be added to the project priority list and the list will be made available for public comment at the end of each calendar quarter in which one or more projects are added to the list.
- Projects on the project priority list will be moved to contingency status if the total amount of needs exceeds the year's DWSRF staff resources capability and loan funding or if it is known that the project will be unable to be funded during FY 2012. Projects will be funded from the top down in the ranking order of the project priority list with consideration given to readiness to proceed. Projects are ranked similarly in the contingency project list. Projects on contingency status can be moved to the funding list when funds are available or when the project is ready to proceed. Funds can be made available due to a number of reasons including project bypasses, loan application withdrawal of other projects, reduction in loan amount requests, or an increase in available funds.

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

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**ITEM**

**5**

**DECISION**

**TOPIC**

**Contract – State Hygienic Laboratory at The University of Iowa –  
Wetland Monitoring Laboratory Services**

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**Recommendation:**

The Department requests Commission approval of a contract in the amount of \$94,527 with the State Hygienic Laboratory (SHL) for one year (May 17, 2011 through June 30, 2012).

**Funding Source:**

Project will be funded through Environmental Protection Agency State Wetland Grants.

**Background:**

The DNR conducts wetland monitoring to evaluate the health of wetland ecosystems in Iowa and to determine their impact in providing beneficial functions such as nutrient reduction, flood reduction, and habitat for wildlife and waterfowl species. The wetland monitoring is conducted using DNR or other contract staff and water samples are submitted to SHL for chemical (nitrogen, phosphorus, herbicide, etc.) and biological analyses (identification of wetland species).

**Purpose:**

The purpose of this contract is to provide analytical services for wetland monitoring to assess the quality of Iowa's waterbodies.

**Consulting Firm Selection Process:**

The SHL was chosen as contractor based on the Code of Iowa (455B.103), which directs the DNR to contract with public agencies of the state. SHL was also chosen for this project due to their sample analysis expertise.

**Scope of Work:**

For an outline of the **scope of work**, see the attached document.

Mary Skopec, Ph.D., Stream Monitoring Coordinator  
Watershed Monitoring and Assessment Section, Iowa Geological and Water Survey  
Environmental Services Division

April 22, 2011

**Statement of Work.** Contractor shall perform the following tasks:

<b>Obligation</b>	<b>Task Milestone Date</b>
<p>Task 1: Analysis of Submitted Water Samples from DNR’s EPA Wetland Condition Index grant project: SHL shall provide chemical analysis of up to 90 wetland water samples provided by DNR staff or designated ISU graduate student (authorization for ISU student to submit samples shall be provided in writing to SHL prior to sampling). Samples for this activity shall be coded as <b>DNR WETLANDISU</b>.</p> <p>SHL shall provide sample containers and chain of custody paperwork for water samples to be collected by DNR staff during the contract period.</p> <p>DNR will pick up sample containers at the SHL Coralville facility and will deliver samples to SHL for analysis. These samples shall be analyzed for the analytes shown in Table 1 or as otherwise indicated on the chain of custody form provided with the sample.</p>	<p>Samples shall be analyzed no later than holding times established by SHL’s Quality Management Plan (March 25, 2010) (including standard operating procedures for laboratory analyses) unless authorized in writing by the Department.</p>
<p>Task 2: Analysis of Submitted Water Samples from DNR’s EPA Farmed Wetland grant project: SHL shall provide chemical analysis of 45 wetland water samples provided by DNR staff. Samples for this activity shall be coded as <b>DNR WETLAND_DRAIN</b>.</p> <p>SHL shall provide sample containers and chain of custody paperwork for water samples to be collected by DNR staff during the contract period.</p> <p>DNR will pick up sample containers at the SHL Coralville facility and will deliver samples to SHL for analysis. These samples shall be analyzed for the analytes shown in Table 2 or as otherwise indicated on the chain of custody form provided with the sample</p>	<p>Samples shall be analyzed no later than holding times established by SHL’s Quality Management Plan (March 25, 2010) (including standard operating procedures for laboratory analyses) unless authorized in writing by the Department.</p>
<p>Task 3: Sample collection, handling, and analysis for all proceeding tasks shall be conducted according to applicable DNR and SHL QA/QC documentation.</p>	<p>No deadline – must follow the Quality Management Plan of the University Hygienic Laboratory, March 25, 2010 at all times.</p>

Task 4:	Data from all previous tasks shall be transferred to the DNR in a STORET-compatible format for water chemistry data. Bioassessment data will be transferred to the DNR's Bioassessment database. Flow data and continuous dissolved oxygen and temperature data shall be transferred in mutually agreed upon formats.	Water chemistry data transferred no later than one month after collection.
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**Table 1. List of Analytes for Wetland Condition Index Project**

Tests	No. of Sites	No. of Sampling Rounds	Total Sampling Rounds
N-Series	18	5	90
P-Series	18	5	90
Total Dissolved Solids	18	5	90
Total Suspended Solids	18	5	90
Chlorophyll A	18	5	90
Chloride	18	5	90
Standard Herbicides	18	5	90
Acid Herbicides	18	5	90

**Table 2. List of Analytes for Farmed Wetland Project**

Tests	No. of Sites	No. of Sampling Rounds	Total Sampling Rounds
N-Series	15	3	45
P-Series	15	3	45
Chloride	15	3	45
Standard Herbicides and Organophosphate Insecticides	15	3	45
Chloroacetanilide Herbicide Degradates	15	3	45
Sulfonyl Herbicides and Imidazolinone Herbicides	15	3	45

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

**ITEM**

**6**

**DECISION**

**TOPIC:** Solid Waste Alternatives Program – Contract Recommendations

The Department received 16 proposals, requesting \$1,999,916 in financial assistance, for consideration during the April 2011 round of funding. Nine (9) projects were selected for funding or additional consideration. If approved they will receive \$1,089,733 in a combination of forgivable, zero-interest, and three-percent loans.

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 table below summarizes recommendations by applicant type, project type and by type of award.

<b>Recommended By Applicant Type</b>	<b># Awards</b>	<b>Award Amount</b>	<b>Forgivable Loan Portion</b>
Local Government	4	\$67,912	\$67,912
Private For Profit	4	\$961,821	\$72,263
Private Not For Profit	1	\$60,000	\$20,000
<b>Recommended By Project Type</b>	<b># Awards</b>	<b>Award Amount</b>	<b>Forgivable Loan Portion</b>
Best Practices	8	\$1,029,733	\$140,175
Market Development	0	\$0	\$0
Education	1	\$60,000	\$20,000
<b>Type of Award</b>	<b># Awards</b>	<b>Award Amount</b>	<b>Forgivable Loan Portion</b>
Forgivable loan only	5	\$80,175	\$80,175
Forgivable and 0% loan only	2	\$207,125	\$40,000
Forgivable, 0%, and 3% loan	2	\$802,433	\$40,000

At this time, the Department is requesting Commission approval to enter into contracts with selected applicants whose awards will be in excess of \$25,000 subject to satisfactory review of business plans and other requested information.

A description of each recommended project, the project type, the amount and type of funding assistance is attached followed by a description of other proposals received but not recommended for funding.

Brian Tormey  
Land Quality Bureau  
Environmental Services Division

Attachment

a) Application descriptions

May 23, 2011



**Cash Match:** \$72,375  
**In-Kind Match:** \$126,193  
**Local Match:** \$198,568

**Total Project Cost:** \$345,693

**Project Title:** **Sortline Expansion**  
**Contact:** Brian Vander Meiden **Phone:** 641-780-5610  
**Project Type:** Best Practices  
**Applicant:** Private for Profit

**Description:** KAL Services / Midwest Sanitation applied for funds to purchase and put into service a high efficiency sort line and a closed-door baler to expand single-stream recycling services in southeast Iowa. The expanded facility is expected to increase current recycling by 30 percent or 200 tons per year and provide new employment opportunities for five individuals.

**Target Area:** 50-mile radius of Oskaloosa, Iowa

**RAS Suppliers, LLC**  
2254 5<sup>th</sup> Avenue  
Marion, Iowa 52302

**Forgivable Loan:** \$ 20,000  
**Zero Interest Loan:** \$150,000  
**3% Interest Loan:** \$130,000  
**Total Award Amount:** \$300,000

**Cash Match:** \$ 8,400  
**In-Kind Match:** \$11,600  
**Local Match:** \$1,238,000

**Total Project Cost:** \$1,538,000

**Project Title:** **Asphalt Shingle Recycling Expansion**  
**Contact:** Jennifer Bleeker **Phone:** 319-373-5549  
**Project Type:** Best Practices  
**Applicant:** Private for Profit

**Description:** To meet that growing demand, RAS Suppliers applied for funds to purchase and put into service processing equipment critical to producing a quality end product that meets or exceeds IDOT specifications and produces product (recycled asphalt shingles) at a rate sufficient to meeting current and future demand. RAS Suppliers proposes providing cost share totaling \$1,238,800, including \$1,003,000 for the construction of Iowa's first indoor RAS shingle recycling factory, and \$235,000 as cash match for equipment purchases.

**Target Area:** East Central Iowa

**EDUCATION PROJECT:**

Kirkwood Community College  
6301 Kirkwood Boulevard, SW  
Cedar Rapids, Iowa 52406

Forgivable Loan: \$20,000  
Zero Interest Loan: \$40,000  
3% Interest Loan: \$ 0  
Total Award Amount: \$60,000

Cash Match: \$25,492  
In-Kind Match: \$36,836  
Local Match: \$62,328

Total Project Cost: \$122,328

**Project Title:** Campus-wide Single Stream Recycling: Kirkwood, Cedar Rapids  
**Contact:** Thomas Kaldenberg **Phone:** 319-398-5569  
**Project Type:** Education  
**Applicant:** Private Not for Profit

**Description:** Kirkwood Community College proposed a new recycling program for its Cedar Rapids main campus that will utilize a co-mingled, single-stream collection process to divert paper, plastic, and metal from the Cedar Rapids / Linn County landfill. SWAP funds requested would be used to purchase and put into service two (2) compactor dumpsters, 120 64-gallon collection receptacles, and to implement a campus wide recycling education campaign. Based on results of a pilot project conducted in 2010, the new program is expected to provide diversion equivalent to 50-70% of the materials currently going to the landfill.

**Target Area:** Kirkwood Community College – Cedar Rapids Main Campus

**PROPOSAL RECOMMENDATIONS: \$25,000 AND BELOW**

**BEST PRACTICES PROJECTS:**

The City of Woodbine  
517 Walker Street  
Woodbine, Iowa 51579

Forgivable Loan: \$14,000  
Zero Interest Loan: \$ 0  
3% Interest Loan: \$ 0  
Total Award Amount: \$14,000

Cash Match: \$14,000  
In-Kind Match: \$ 0  
Local Match: \$14,000

Total Project Cost: \$28,000

**Project Title:** Woodbine Curbside Recycling  
**Contact:** Joseph Gaa **Phone:** 712-647-2550  
**Project Type:** Best Practices  
**Applicant:** Local Government

**Description:** The City of Woodbine applied for funds to implement a curbside recycling program that will serve Woodbine's 700 households. The program will provide two reusable curbside recycling bins to each household, and recyclables will be separated into mixed paper and

cardboard in one bin and aluminum cans, tin cans, and plastics (#s 1 – 7) in the other. The program is expected to divert 159 tons of recyclables from the Harrison County Landfill each year. As the first curbside recycling program implemented in Harrison County, the program is also expected to inspire neighboring communities to implement similar programs.

**Target Area:** Woodbine, Iowa

**City of Fonda**  
**104 West 2<sup>nd</sup> Street**  
**Fonda, Iowa 50540-0367**

**Forgivable Loan: \$13,912**  
**Zero Interest Loan: \$ 0**  
**3% Interest Loan: \$ 0**  
**Total Award Amount: \$13,912**

**Cash Match: \$ 4,638**  
**In-Kind Match: \$60,000**  
**Local Match: \$64,638**

**Total Project Cost: \$78,550**

**Project Title: Fonda Residential and Commercial Recycling Program**  
**Contact: Phyllis Menke Phone: 712-288-4466**  
**Project Type: Best Practices**  
**Applicant: Local Government**

**Description:** The City of Fonda applied for funds to assist with the implementation of its curbside recycling program for Fonda's 320 households; a dumpster program for two apartment complexes and eight of Fonda's largest commercial properties; and a recycling trailer to be used as a drop-off recycling program for residents where curbside pickup is not convenient. SWAP funds will be used to purchase 400 18-gallon curbside recycling bins, ten 3-yard roll-off recycling containers, and a recycling trailer. Projected annual diversion of recyclables from the landfill is 134 tons.

**Target Area:** Fonda, Iowa

**East Central Iowa**  
**Council of Governments**  
**700 16<sup>th</sup> Street NE, Suite 301**  
**Cedar Rapids, Iowa 52402**

**Forgivable Loan: \$20,000**  
**Zero Interest Loan: \$ 0**  
**3% Interest Loan: \$ 0**  
**Total Award Amount: \$20,000**

**Cash Match: \$11,225**  
**In-Kind Match: \$31,500**  
**Local Match: \$42,725**

**Total Project Cost: \$62,725**

**Project Title: Tama County Recycling Drop-off Project**  
**Contact: Jennifer Fencil Phone: 319-365-9941, ext. 301**  
**Project Type: Best Practices**  
**Applicant: Local Government**

**Description:** ECICOG applied for SWAP funds on behalf of the Tama County Solid Waste Disposal Commission to improve the drop-off recycling program for residents and businesses in Tama County. The Tama County Recycling Drop-off project will update and improve recycling for residents and businesses in all 12 communities and at the Tama County Landfill. The improved drop-off program will provide consistency for containers and signage; decrease contamination; and increase the amount recycled. The project is expected to lead to an increase of 200 tons of recycled material collected over the first year.

**Target Area:** Tama County, Iowa

**Benton County Sanitary Landfill**  
 7904 20<sup>th</sup> Avenue  
 Blairstown, Iowa 52209

**Forgivable Loan:** \$20,000  
**Zero Interest Loan:** \$ 0  
**3% Interest Loan:** \$ 0  
**Total Award Amount:** \$20,000

**Cash Match:** \$ 8,400  
**In-Kind Match:** \$11,600  
**Local Match:** \$20,000

**Total Project Cost:** \$40,000

**Project Title:** Benton County Drop-off Recycling Project  
**Contact:** Myron Parizek **Phone:** 319-472-2211  
**Project Type:** Best Practices  
**Applicant:** Local Government

**Description:** The Benton County Sanitary Landfill applied for funds to continue and improve the drop-off recycling program for rural residents and small businesses in Benton County. The Benton County Drop-off Recycling Project will maintain access to recycling for rural residents and small businesses. The improved drop-off program will provide consistency for containers and signage, making it easier for the public to use and far more efficient for the landfill to manage. SWAP funds would be used to assist with the purchase of six (6) twenty-yard roll-off recycling containers, paint and signage for the containers, and educational materials and print advertising.

**Target Area:** Benton County, Iowa

**Sears Manufacturing Company**  
 1718 South Concord Street  
 Davenport, Iowa 52802

**Forgivable Loan:** \$12,263  
**Zero Interest Loan:** \$ 0  
**3% Interest Loan:** \$ 0  
**Total Award Amount:** \$12,263

**Cash Match:** \$10,063  
**In-Kind Match:** \$ 2,568  
**Local Match:** \$12,631

**Total Project Cost:** \$24,894

**Project Title:** **Plastics Recycling**  
**Contact:** Kyle Tucker **Phone:** 563-383-2870  
**Project Type:** Best Practices  
**Applicant:** Private for Profit

**Description:** Sears Manufacturing Company, a Davenport-based manufacturer of suspension and non-suspension seating systems for the agriculture, construction, and material handling equipment, applied for funding to purchase and put into service recycling equipment for separating, collecting, and baling shrink wrap, thin foam, and plastic banding for recycling. Plastic currently makes up 40 percent of SMC's total waste going to the landfill, and recycling it will divert an estimated 27 tons of plastics from the landfill annually.

**Target Area:** Scott County, Iowa

**PROPOSALS RECEIVED, NOT RECOMMENDED**

**BEST PRACTICES PROJECTS:**

**City of Rowley**  
110 South Street  
Rowley, Iowa 52329 **Total Amount Requested: \$12,457**

**Project Title:** **Kelly Neilson Park**  
**Contact:** Rita Knutson **Phone:** 319-938-2864  
**Project Type:** Best Practices  
**Applicant:** Local Government

**Description:** The City of Rowley applied for funds to replace an existing play area with one that contains a minimum of 50 percent recyclable materials and is approximately 80 percent recyclable.

**TMJ Construction Services**  
2335 210<sup>th</sup> Street  
Ames, Iowa 50014 **Total Amount Requested: \$168,250**

**Project Title:** **Shingle Recycling Project**  
**Contact:** Chris Thompson **Phone:** 515-232-1493  
**Project Type:** Best Practices  
**Applicant:** Private for Profit

**Description:** TMJ applied for SWAP funds to establish an asphalt shingle recycling facility in Ames that would grind shingles to be used in the production of hot mix asphalt for paving projects. In addition to shingles collected from TMJ tear-offs, the company proposes to accept asbestos-free shingles from homeowners, other roofing companies, and dumpster companies, charging them a \$30 per ton disposal fee. First-year projected diversion of used shingles from the landfill is estimated to be 5,000 tons. The project would provide new employment opportunities for two individuals.

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**Ciji Mitrisin**  
118 SE 4<sup>th</sup> Street, Suite 103  
Des Moines, Iowa 50309

**Total Amount Requested: \$20,000**

**Project Title:** RecycleMe Iowa  
**Contact:** Ciji Mitrisin **Phone:** 641-660-4333  
**Project Type:** Best Practices  
**Applicant:** Private for Profit

**Description:** Ciji Mitrisin applied for funding to pay the salaries of additional employees needed for maintaining and expanding RecycleMe Iowa, a doorstep recycling company designed to meet the recycling needs of Des Moines' metro area apartment tenants, small businesses, and special events.

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**MARKET DEVELOPMENT PROJECTS:**

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**The ReWall Company, LLC**  
3818 Wolcott Avenue  
Des Moines, Iowa 50321

**Total Amount Requested: \$610,000**

**Project Title:** Polycoated Paper Waste Conversion Project  
**Contact:** David Phillips **Phone:** 515-490-5200  
**Project Type:** Market Development  
**Applicant:** Private for Profit

**Description:** The ReWall Company is a Des Moines-based startup that applied for funds to assist with the purchase of equipment, feedstock materials, tenant improvements, and partial funding of salaries to produce structural fiberboard that recycles beverage cartons and cups in its manufacturing process. The beverage cartons (milk, orange juice, coffee cups...) are comprised of polyethylene, high fiber paper, and sometimes aluminum. The ReWall fiberboard would serve as a 'green' construction material that has the appearance of drywall, the durability of plywood, is mold and moisture resistant, is flexible, and provides thermal and acoustic insulation.

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**T & S Scrap, LLC**  
1135 Hayne Street  
Ottumwa, Iowa 52501

**Total Amount Requested: \$18,735**

**Project Title:** T & S Scrap Electronics and CRT Recycling  
**Contact:** Travis Reinier **Phone:** 641-455-1478  
**Project Type:** Market Development  
**Applicant:** Private for Profit

**Description:** T & S Scrap is applied for funds to implement a new electronics recycling facility in southeast Iowa that would include e-material pickup and delivery, equipment de-manufacturing, certification of destruction, and sales of parts and/or functioning units.

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**Divine Waste, Inc.**  
121 North Taylor Street  
Mt. Ayr, Iowa 50854

**Total Amount Requested: \$45,375**

**Project Title:** Polycoated Paper Waste Conversion Project  
**Contact:** Tim Newton **Phone:** 515-238-6748  
**Project Type:** Market Development  
**Applicant:** Private for Profit

**Description:** Divine Waste applied for \$45,375 in loans to purchase and put into service drop-off recycling equipment, including two (2) drop-off recycling trailers, a baler, a forklift, and a skidloader. The recycling equipment would be used to establish a drop-off recycling program in Ringgold County.

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**Iowa State University, FP&M Utility Services**  
Room 220 Power Plant  
Ames, Iowa 50011-4023

**Total Amount Requested: \$35,366**

**Project Title:** Feasibility Study to Investigate the Use of ISU Fly Ash to Make Bricks  
**Contact:** Jeff Witt **Phone:** 515-294-8286  
**Project Type:** Market Development  
**Applicant:** Local Government

**Description:** ISU is looking for a cost effective and environmentally beneficial manner to remediate their fly ash stream and recently started working with Ecologic Tech to characterize ISU ash to determine its viability to make bricks that meet ASTM 216 clay brick standards for "severe weather" bricks. Requested funding would be used to assist with the cost of a study to investigate the feasibility of using ISU fly ash to make bricks to be used in the construction industry.

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Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

7

DECISION

TOPIC

**Contract - Regional Collection Center Establishment Grant for Palo Alto County Solid Waste Agency**

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**Recommendation:**

The Department received and reviewed a Regional Collection Center Establishment Grant application from Palo Alto County Solid Waste Agency requesting \$39,991 in financial assistance to improve their hazardous materials collection and disposal program. Upon review of the application, the review committee recommends funding the applicant request.

**Funding Source:**

The Regional Collection Center Establishment Grant Program is funded with solid waste tonnage fees as established in the Groundwater Protection Act.

**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 4,830,045 pounds (more than 2,415 tons) of household hazardous waste was accepted, processed, recycled and disposed of through the RCC Program in FY 2010. 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:**

The purpose of funding this application is to improve Regional Collection Center Services in Palo Alto County. The proposed project will establish a permanent collection facility, open year-round, serving households, farm operations and conditionally exempt small quantity generator businesses on a permanent, on-going basis. Currently the County relies on the Regional Collection Center in Clay County to conduct a one-day collection event sometime during the year.

Based on similar sized Regional Collection Center programs, the Palo Alto County satellite facility can expect to properly manage nearly 25,000 lbs of hazardous waste from households, farms, and small business generators in the first year, diverting these hazardous materials from the solid waste stream.

Through a partnership agreement with the Northern Plains Regional Collection Center in Clay County, hazardous materials collected in Palo Alto County will be transported to the Clay County facility for final processing and out-of-state recycling and disposal. This partnership arrangement will reduce overall disposal costs of both facilities.

At this time, the Department is requesting Commission approval to enter into a contract with Palo Alto County to establish a permanent, satellite Regional Collection Center facility.

Brian Tormey, Chief  
Land Quality Bureau  
Environmental Services Division

May 23, 2011

### **REGIONAL COLLECTION CENTER ESTABLISHMENT PROGRAM**

Following is a brief description of the RCC establishment grant application recommended for funding.

**Applicant:** Palo Alto County Solid Waste  
3428 450<sup>th</sup> Avenue  
Emmetsburg, Iowa 50536

**Award Amount:** \$39,991

**Contact:** Joe Neary (712) 852-3058

**Cost Share Amount:** \$ 1,000

**Description:** This application is to establish a satellite collection center providing increased convenience, year-round disposal opportunities and HHM education for Palo Alto County. The satellite facility will accept household hazardous materials year-round and will be located at the County Transfer Station. The facility will serve approximately 4119 households and approximately 75 conditionally exempt small quantity generator businesses. Hazardous materials accepted at the satellite facility in Palo Alto County will be collected for final processing and packaging and final disposition through a partnership with the Northern Plains Regional Collection Center, located in Clay County.

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

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**ITEM**

**8**

**DECISION**

**TOPIC**

**Contract – City of Seymour – Derelict Building Deconstruction Pilot Project**

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**Recommendation:**

The Department requests Commission approval of a contract not to exceed \$90,000 with the City of Seymour for the deconstruction and beneficial reuse of non-asbestos containing materials of two adjoining derelict buildings located at 130 N. 4<sup>th</sup> Street and 114 N. 4<sup>th</sup> Street. It is anticipated the contract duration will be approximately three months.

**Funding Source:**

This pilot derelict building deconstruction project will be jointly funded as follows:

- \$25,000 – City of Seymour (Grantee)
- \$25,000 – Iowa Brownfield Redevelopment Program (Federal)
- \$90,000 – Solid Waste Alternatives Program (Solid Waste Tonnage Fee)

**Background:**

Many communities have problems with nuisance properties that are in an extremely dilapidated condition. These create health and safety problems for the community and have a blighting influence on the use and value of neighboring properties. Smaller communities lack the resources needed to address nuisance properties effectively. When they are able to address them, often times these structures are in such a dilapidated state that the only solution is to demolish or burn the property and dispose of them in a landfill.

Creating a program to address derelict buildings in small communities would aide local governments by providing funding assistance to abate such structures of asbestos and hazardous materials, rehabilitate structures so that they can maintain habitable housing or operable business and, if that option isn't feasible, deconstruct the buildings to recycle materials that still have value or can be beneficially reused. In addition, approximately 20% of the solid waste currently being disposed in Iowa landfills is construction and demolition debris. By providing an incentive for deconstruction projects it could drive a demand for such services from contractors and increase landfill diversion of these materials.

**Purpose:**

To pilot a derelict building deconstruction project by addressing two structures in the City of Seymour. The project will provide valuable information assisting with the development of an on-going derelict building program. The project will focus on beneficial reuse of select building materials as a means of maximizing landfill diversion.

At this time we request the Commission's approval to enter into an agreement with the City of Seymour.

Brian Tormey, Chief  
Land Quality Bureau  
Environmental Services Division

## ARTICLE IV. SCOPE OF WORK

- 4.1 **Project Description.** The Grantee shall contract with a licensed professional for the deconstruction of 130 N. 4<sup>th</sup> Street and 114 N. 4<sup>th</sup> Street in the City of Seymour, Iowa. Any uncontaminated rubble such as concrete, brick soil or rock may be used for fill, landscaping, excavation or grading or as a substitute for conventional aggregate. Salvageable bricks may also be used as originally intended. The remainder of solid waste materials will be disposed of at a permitted sanitary landfill as asbestos containing materials (ACM).

Specific duties of the Grantee include:

- a. Secure the area and protect the surrounding property from falling debris.
- b. Deconstruct the structures by removing concrete, brick and mortar for reuse to the greatest extent possible.
- c. ACM will be handled per Iowa regulations and disposed of at a permitted sanitary landfill.
- d. Recovered concrete, brick and mortar will be washed on site, in containment prior to beneficial reuse. Basement foundation walls may remain in place.
- e. Wash water will be pumped into a storage tank, filtered and then released to the municipal sanitary sewer. Filter media will be disposed of at a permitted sanitary landfill as ACM.
- f. Grantee secures ownership to both properties, 130 N. 4<sup>th</sup> Street and 114 N. 4<sup>th</sup> Street
- g. A minimum of two feet of soil will be used to complete backfill needs making the site level and safe.
- h. Final use of the site shall comply with the approved Iowa Brownfield Redevelopment plan.

**Final Documentation.** Final Documentation shall include the following information, as collected over the full term of the Agreement:

1. Provide estimated total tonnage or cubic yards of material diverted from the landfill.
2. Provide total tonnage landfilled for materials considered ACM.
3. Summarize the project in terms of the process used and the merits of deconstructing derelict buildings in general and the projected impacts on the City of Seymour resulting from removal of these derelict structures.
4. Dimension of each structure deconstructed including number of floors.
5. Dollars saved by diverting materials from a permitted sanitary landfill through beneficial use.
6. Number of loads delivered, with receipts, to a permitted sanitary landfill and landfill name(s).

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

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**ITEM**

**9**

**DECISION**

**TOPIC**

**Contract with the University of Northern Iowa, Iowa Waste Reduction Center – Iowa Waste Exchange Program technical assistance, database management and training**

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**Recommendation:**

The Department requests Commission approval of a contract in the amount of \$30,000 with the University of Northern Iowa, Iowa Waste Reduction Center for one year. The contract is for the University to provide technical assistance, database management and training for the Iowa Waste Exchange program.

**Funding Source:**

This project will be funded through the Groundwater Protection Fund, Solid Waste Account where monies are received from the tonnage fee imposed under section 455B.310.

**Background:**

Iowa code 455E.11(2)(a)(2)(c) Groundwater Protection Fund, requires the following:

*The Department shall expend not more than thirty thousand dollars of the moneys appropriated under this subparagraph subdivision to contract with the by-products and waste search service at the University of Northern Iowa to provide training and other technical services to grantees under the program.*

**Purpose:**

The purpose of this contract is to provide technical assistance, database management and training to the Iowa Waste Exchange program and its Representatives.

**Consulting Firm Selection Process:**

A selection process was not completed because these moneys are legislated to be distributed to the University of Northern Iowa.

**Scope of Work:**

For an outline of the **scope of work**, see attached.

Based on the Iowa Code and existing relationships with the University of Northern Iowa, we recommend the contract for the University of Northern Iowa, Iowa Waste Reduction Center be awarded.

Brian Tormey, Land Quality Bureau, Environmental Services Division

May 20, 2011

**EXHIBIT A**  
**STATEMENT OF WORK**

The Department's stated objective is for the Iowa Waste Reduction Center (the Contractor) to provide technical assistance and database maintenance and coordination for the Iowa Waste Exchange program as approved by the Department. The services included below may be amended at any time by the Department or the Contractor upon prior approval by the Department. The Contractor will provide the following tangible products:

**I. Technical Assistance Services**

The Contractor shall deliver technical assistance services requested by the Department to the Iowa Waste Exchange (IWE) program to improve overall service of the Iowa Waste Exchange database and beneficial results for the program's clients. Services may include the following:

- a. Reviewing sample listings of potential markets to determine if they meet the minimum qualifications necessary to be listed on the IWE database
- b. Electronically updating and distributing the Iowa Waste Exchange Handbook to the Department and all IWE area resource specialists
- c. Conducting database training for all IWE program staff and partners
- d. Assisting the Department with the maintenance of the IWE database
- e. Identifying database improvements and updates and serving as a team member for additional database improvements
- f. Maintaining lists of bugs utilizing the Iowa DNR's BugTracker.net application that will be provided to the Contractor
- g. Verifying available and wanted materials submitted by the public
- h. Coordinating the testing of fixes and new features within 10 days of the release.
- i. Maintaining and prioritizing a list of future enhancements for the upcoming version of the database.
- j. Maintaining Group Messages in the database

**II. Reports**

The Contractor shall submit monthly and final performance reports that have a narrative discussion of delivery of technical assistance services including, but not limited to:

1. All work conducted related to Section I above, Technical Assistance Services, for which the Contractor is seeking reimbursement
2. Training provided to the IWE program representatives
3. IWE services provided to IWE clients contacting the Contractor including number of contacts and services provided
4. Report current status of open bugs from BugTracker.net application
5. Media related contacts received by or initiated by the Contractor related to the IWE, and number of client inquiries for IWE assistance received directly by UNI staff, and
6. Report on other services provided by the Contractor not listed above but that are related to the IWE.

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

10

DECISION

TOPIC

**Contract with the State Hygienic Laboratory at The University of Iowa  
for Laboratory Services for Contaminated Sites Program**

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**Recommendations:**

Commission approval is requested for a one year-service contract with University of Iowa Hygienic Lab. The contract will begin on July 1, 2011 and terminate on June 30, 2012. The total amount of this contract shall not exceed \$65,000.

**Funding Source:**

This contract will be funded through EPA CERCLA, EPA Brownfields, and state Hazardous Waste Remedial Funds. No general fund monies are used.

**Background:**

Under various state and federal programs the Contaminated Sites Section of IDNR conducts investigations of environmental contamination. This process involves the collection of samples of unknown chemicals or environmental media potentially contaminated by chemicals. In order to positively identify and quantify the concentration of those chemicals it is necessary to have them analyzed by a qualified laboratory.

**Purpose:**

The parties propose to enter into this Contract for the purpose of retaining the Contractor to provide necessary analytical services.

Brian Tormey  
Land Quality Bureau  
June 21, 2011

Attachment(s): Contract Statement of Work

## **Section 5 STATEMENT OF WORK**

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**5.1 Statement of Work.** Contractor shall perform the following tasks:

**Task 1: Analyze and report environmental media samples collected by Department staff during contaminated sites investigations (WMSF).**

- Analyze samples of water, soils, soil-gas, solvents, solid wastes, and other environmental media collected by the Department during contaminated sites investigations. The samples will be tested for parameters as specified by the collector in consultation with laboratory.
- Samples submitted for analysis will be coded **WMSF**. All samples submitted to SHL by Department or SHL staff shall be coded to a specific monitoring activity and shall include a detailed list of the analyses to be performed unless other arrangements have been made before shipment of the sample to SHL. SHL log-in procedures shall accommodate this code. A monthly report of the logged-in samples shall be provided in a mutually agreeable format. Any deviation from normal sampling procedures, such as a change in sampling location, omission of samples for analysis, etc., shall be identified to DNR in writing prior to transmittal of analytical results.
- For analytical results below the quantitation limit, the test quantitation limit shall be reported as “less than”. Any results for tests run on samples after recommended holding times have been exceeded shall be so indicated or qualified as appropriate.
- Submit information on data quality requirements and assessments (such as detection limit, quantitation limit, estimated accuracy, accuracy protocol, estimated precision, and precision protocol) to DNR for any sample upon request. Information on the analytical reference method, sample preservation and holding time also shall be provided if requested.
- Provide copies of revised Methods Manuals and Standard Operating Procedure Manuals to the Department upon request. Copies of manuals and procedures shall be available from the laboratory.

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

11

DECISION

TOPIC

**Contract with The State Hygienic Laboratory at The University of Iowa for Laboratory Services and Corrective Action Specialist for Underground Storage Tank Program**

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**Recommendations:**

Commission approval is requested for a one year-service contract with the State Hygienic Laboratory at The University of Iowa, Iowa City, Iowa. The contract will begin on July 1, 2011 and terminate on June 30, 2012. The total amount of this contract shall not exceed \$93,735.

**Funding Source:**

This contract will be funded through the U.S. Environmental Protection Agency, LUST Trust Prevention Grant, CFDA No. 66.804 and the LUST Trust Corrective Action Grant, CFDA No. 66.805.

**Background:**

The overall function of this contract is to aid the Director of the Iowa Department of Natural Resources in determining the quality of the environment of the state of Iowa by providing laboratory services and the summarizing and reporting of environmental quality data to the DNR. Another function is to provide the services of one temporary Corrective Action Specialist position. All services will be performed in support of the environmental regulatory programs of the Underground Storage Tank (UST) Section.

**Purpose:**

The parties propose to enter into this Contract for the purpose of assisting the DNR by providing laboratory services for the Underground Storage Tank (UST) regulatory program. This support will include analysis of samples from various media (soil, groundwater, vapor, receptors) at UST sites, and summarizing and reporting on the environmental quality data. Samples may be analyzed for a variety of chemistry parameters related to petroleum products. This is referred to as Task 1.

In addition, the parties have entered into this Contract for the purpose of providing a temporary staff position to facilitate corrective action planning meetings for leaking underground storage tank (LUST) sites. The position is a Corrective Action Specialist who assists in facilitating meetings with affected parties, coordinating remediation activities, and providing technical assistance at LUST sites. This is referred to as Task 2.

**Contractor Selection Process:**

The State Hygienic Laboratory at The University of Iowa was chosen for this project because it is the state of Iowa's Environmental and Public Health Laboratory. The Department has several contracts with the laboratory to provide analytical services.

Brian Tormey  
Land Quality Bureau  
Environmental Services Division  
June 21, 2011

**STATEMENT OF WORK**

**Statement of Work.** Contractor shall perform the following tasks. Contractor shall complete its obligations under this Contract by the Task Milestone Dates set out in the following table.

Obligation	Task Milestone Date
<p><b>Task 1: SHL shall analyze and report liquid and solid samples collected by DNR staff primarily during investigations of petroleum leaks from underground storage tanks (WQUST) by performing the following subtasks:</b></p> <p><b>Task 1A.</b> SHL shall analyze approximately 65 liquid samples and solid samples collected by DNR staff primarily during investigations of petroleum leaks from underground storage tanks. The samples shall be analyzed to determine the composition of the contaminant material.</p> <p><b>Task 1B.</b> Samples collected through this activity shall be coded as <b>WQUST</b>. All samples submitted to SHL by the DNR or SHL staff shall be coded to a specific monitoring activity and shall include a detailed list of the analyses to be performed unless other arrangements have been made before shipment of the sample to SHL. SHL log-in procedures shall accommodate this code. A monthly report of the logged-in samples shall be provided using the following data: lab number; date of sample collection; date sample received; date sample released; the identity of the entity who submitted the sample; identity of the collection site; identity of sample collection town; the amount of the fee; comments regarding the sample; names of laboratory analysis tests to be conducted (i.e., MV OA-1, SXTEHWG, TEHWG). Any deviation from normal sampling procedures, such as a change in sampling location, or omission of samples for analysis, shall be identified to DNR in writing prior to transmittal of analytical results.</p> <p><b>Task 1C.</b> For analytical results below the quantitation limit, the test quantitation limit shall be reported by SHL as “less than”. Any results for tests run on samples after recommended holding times have been exceeded shall be so indicated or qualified as appropriate.</p> <p><b>Task 1D.</b> SHL shall submit information on data quality requirements and assessments (such as detection limit, quantitation limit, estimated accuracy, accuracy protocol, estimated precision, and precision protocol) to DNR for any sample upon request. Information on the analytical reference method, sample preservation and holding time also shall be provided if requested.</p> <p><b>Task 1E.</b> SHL shall provide copies of revised Methods Manuals and Standard Operating Procedure Manuals to the DNR upon request. Copies of manuals and procedures shall be available from the laboratory.</p>	<p><b>For Task 1B:</b> Reports shall be submitted to the DNR monthly, by the 15<sup>th</sup> day of each month reporting the previous month’s work, with the first report due on August 15, 2011.</p> <p><b>For Tasks 1A, 1C, 1D, and 1E:</b> On-going for the term of the Contract.</p>
<p><b>Task 2: Provide the following position for the DNR:</b></p> <p>Corrective Action Specialist for coordinating meetings and providing technical assistance at LUST sites. While SHL shall be the employer, SHL shall consult with the DNR about who SHL shall hire for this position to ensure the candidate possesses the requisite expertise and experience to perform the function; shall allow the DNR to provide input on the hiring and supervision of the employee; shall provide the DNR a method through which the DNR can report performance issues to SHL observed by the DNR related to the employee; and shall counsel, discipline or terminate, whichever is appropriate, the employee, consistent with SHL policies, in the event the employee is unable or unwilling to perform the functions of the job or comply with SHL or applicable DNR policies.</p>	<p><b>Task 2:</b> Ongoing for the term of the Contract.</p>

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

12

DECISION

TOPIC     **Contract Amendment with University of Iowa for Dam Safety Inspectors**

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**Recommendations:**

Commission approval is requested for a contract to continue to retain 2 part time dam inspectors through the University of Iowa of Iowa City, Iowa for 12 months. The contract begins on July 1, 2011 and terminates on June 30, 2012. The contract amount is not to exceed \$59,108 for this period.

**Funding Source:**

This contract is funded through the federal Dam Safety Grant (CFDA 97.041) and Iowa Infrastructure Funds (50/50).

After the floods of 2008, a high priority was put on flood plain management and dam safety in Iowa. During the 2009 Legislative Session, HF822 Infrastructure Fund Appropriations was passed. Section 7(b) states the following:

*"b. For floodplain management and dam safety, notwithstanding section 8.57, subsection 6, paragraph "c":..... \$ 2,000,000 Of the amounts appropriated in this lettered paragraph, up to \$400,000 is authorized for stream gages to be used for tracking and predicting flood events and for compiling necessary data relating to flood frequency analysis. Of the number of full-time equivalent positions authorized to the department for FY 2009=2010 pursuant to 2009 Iowa Acts, Senate File 467, if enacted, up to 21.00 full-time equivalent positions shall be allocated for the floodplain management and dam safety program."*

This appropriation was continued for SFY11 and is proposed in all budgets for SFY12. Each contract has a provision for termination if the funding becomes unavailable.

**Background:**

The Iowa Department of Natural Resources has the authority to perform periodic inspections of dams to ensure the safety of human life and property.

The DNR's Dam Safety Program is tasked with protecting the public from risks associated with dams. The stored water behind a dam can cause extensive damage downstream if the dam should fail. The DNR inspects dams meeting these criteria:

- All high hazard dams (every two years)
- Moderate hazard dams with permanent water storage or more than 100 acre feet and with more than 250 acre feet of top of dam storage (every five years)
- Dams where the storage capacity multiplied by the dam's height is greater than 30,000 (every five years)
- The DNR will also visit dams that show possible signs of failure or at the request of a dam owner.

Inspectors look for:

- Damage to the embankment, including vegetation, waterline erosion, poor slope stability, damage from burrowing rodents and signs of seepage.
- The condition of the dam's main spillway, making sure it is clear of debris and structurally sound, and other parts of the spillway are working.
- The condition of the emergency spillway, ensuring it is free of trees, brush and debris.

- Functioning drains and outlets.
- Any changes to conditions or land uses downstream.
- Verification the dam is operating under its permit conditions.

Currently, dam safety program staff is working with about 40 owners of dams that have not been ranked "satisfactory." Generally, these dams need repairs to their spillways, need trees removed, have seepage problems or need to be brought up to modern design criteria.

**Purpose:**

The parties propose to enter into this Contract for the purpose of retaining the Contractor to provide: 2 Dam Safety Inspectors on a part time/hourly basis.

Inspections are completed by the two part-time contract inspectors, Dick Hall out of Sioux City and Larry Dorgan out of Creston. Both are retired NRCS engineers. The DNR's senior dam safety engineer assigns dam inspections to each inspector. After the inspection is completed, the report is sent back to the dam safety engineer, who then begins any compliance follow-up actions as necessary.

Lori McDaniel  
Supervisor  
Water Quality Bureau, Environmental Services Division  
May 23, 2011

Iowa Department of Natural Resources  
Environmental Protection Commission

ITEM

13

DECISION

TOPIC

Contract with University of Iowa (Iowa Flood Center) for Bridge Mounted Stream/River Sensors

**Recommendations:**

Commission approval is requested for a service contract with University of Iowa (Iowa Flood Center). The contract will begin on 7/1/2011 and terminate when the tasks are complete which is projected to be January 1, 2012. This is a fixed amount contract for \$175,000.

**Funding Source:**

The source of funding for this Contract is Environment First Funds appropriated by the Iowa General Assembly in 2010 according to SF2389. Section 7a of the bill appropriates \$2 million to the DNR for floodplain management and dam safety and "of the amounts appropriated in this lettered paragraph, up to \$400,000 is authorized for stream gages to be used for tracking and predicting flood events and for compiling necessary data relating to flood frequency analysis."

**Purpose:**

In 2010, the Iowa Flood Center at the University of Iowa was contracted by the Iowa DNR to install 50 bridge-mounted stream-level sensors on various bridges across the state (A section of the original proposal is attached for additional information on the bridge sensor). Those sensors are working properly and transmitting flow data in real time that can be monitored at any time. This contract is for the Iowa Flood Center to install 50 additional sensors broadening the network of monitored locations.

The Iowa Flood Center (IFC) will deploy 50 bridge-mounted sensors in 2011 and provide training for the operation and maintenance of the sensors. Cities and counties willing to cooperate in the second year of this project will be selected by the IFC. Cooperators will be responsible for the on-going maintenance costs for each unit. The IFC will also maintain the web-based map interface for accessing sensors information in real-time that they developed in 2010.

Sharon Tahtinen, Acting Chief  
Water Quality Bureau  
June 21, 2011

**STATEMENT OF WORK**

Obligation	Task Milestone Date
Task 1: Construct 50 wireless ultrasound stream-level sensors	September 1, 2011
Task 2: Deploy each of the 50 sensors at locations identified and prioritized by the IFC	January 1, 2012
Task 3: Maintain the web-based map interface for accessing sensors information in real-time	Continuous

## INTRODUCTION

Severe flooding in Iowa in 2008 demonstrated the need for more widespread monitoring of Iowa rivers and streams in real time. Equipped with an inexpensive sensor, we could monitor every branch of every creek, stream, and river. Measurements would be reported in real-time to a central system for advanced public notification of an impending flood. The system would complement the network of stream gauges operated by the United States Geological Survey. USGS provides monitoring of river discharge at just over 150 locations in the entire state of Iowa using standard gauging technologies with a maintenance cost totaling thousands of dollars per gauge per year.

## BRIDGE MOUNTED STREAM-LEVEL RECORDING INSTRUMENTS

The Iowa Flood Center of IIHR-Hydroscience & Engineering at The University of Iowa is developing an electronic automated sensor that measures stream water height (stage) and transmits this measurement automatically and frequently to a central location. The sensor is placed under bridges and uses a sonar signal to measure the distance from the water surface to the sensor. Data from the sensor are used to determine stream stage.

Our sensor prototype was deployed on a local bridge on Ralston Creek in Iowa City in late 2009. We are currently testing it and fine-tuning it to account for different variables such as changes in ambient air temperature. (Since the speed of sound varies with temperature, we noticed fluctuations in sensor data depending on the air temperature.) The current sensor system can be produced and deployed for \$3,500 per unit, which is a fraction of the cost of other current gauging systems.

## SCOPE OF WORK

The Iowa Flood Center (IFC) proposes to build and deploy 50 bridge-mounted sensors in spring 2010. The IFC will:

- Construct 50 wireless ultrasound stream-level sensors;
- Deploy each of the 50 sensors; and
- Develop a web-based map interface for accessing sensors real-time information (similar to the one used for rainfall gauges <http://weather.iihr.uiowa.edu/ifc/gauges.html>).



Figure 1. Electronics inside the sensor.

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

14

DECISION

TOPIC

**Contract Amendments – Utility Management Organization Grants for Wastewater Services to Small and Unsewered Communities**

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**Recommendations:**

Commission approval is requested for a one [1] year service contract extension with each of the following Utility Management Organizations (UMOs):

- ADLM Facilities Management Systems (Contract # 2009-7123-05)
- Eastern Iowa Regional Utility Service Systems (Contract # 2009-7123-04)
- Regional Utility Service Systems (Contract # 2009-7123-01)
- Rural Utility Solutions (Contract # 2009-7123-03)
- Wastewater Management Services of Central Iowa (Contract # 2009-7123-06)

The contract amendments will begin on July 1, 2011 and terminate on June 30, 2012. The total amount of the contract amendments shall not exceed \$50,000 each.

**Funding Source:**

The funding for these contract amendments comes from \$250,000 to be approved in the FY 2012 Clean Water State Revolving Fund (CWSRF) Intended Use Plan. A portion of the loan fees paid by CWSRF borrowers (non-program income) may be used for general water quality efforts, and the DNR has proposed using it to continue to support regional efforts to address wastewater needs for small communities.

**Background:**

Many rural communities in Iowa provide little or no wastewater treatment. Discharge of untreated or partially treated waste presents a significant human health risk and potentially degrades ground and surface water quality. Viable waste treatment solutions are difficult and costly, often exceeding the local capacity for planning, financing, and management. Even small rural communities currently served by a wastewater system often lack adequate managerial capability to ensure they are operating in a manner which protects the environment and public health.

Regional utility management organizations (UMOs) assist these communities by providing management services to handle planning, project construction, financial capacity, permitting, operations, and delivery of services. UMOs have been organized to operate on a multi-county and multi-community scale.

DNR has been successful in working with three types of management organizations: rural water associations, multi-county 28E cooperative management programs, and a multi-county environmental health group.

With the influx of federal and state stimulus funds to USDA Rural Development, the UMOs are well positioned to assist small and unsewered communities to take advantage of the increased funding opportunities.

The DNR will gradually phase out the grant funding for the UMOs as they gain users and build their sustainability through user and project administration fees.

**Purpose:**

These contracts have been created to help build sustainable utility management organizations (UMOs). These groups are to manage the wastewater infrastructure in small communities that are unincorporated and/or too small to effectively manage this infrastructure. These management entities will help establish wastewater infrastructure in unsewered communities and offer to manage the infrastructure in somewhat larger communities that could benefit from this service.

**Contractor Selection Process:**

The original contractors were chosen through a competitive selection process conducted by DNR in spring 2008. Six contracts for \$40,000 to \$50,000 each were approved by the EPC in June 2008. In the spring of 2009, the duties of handling the UMO contracts were transferred to the Water Quality Advocate contract between DNR and the Iowa Department of Economic Development (IDED). In March 2010, the Water Quality Advocate at IDED was reassigned internally and that contract was not renewed. Contract management for the UMO efforts was transferred back to DNR and is now being covered by the Water Quality Bureau executive officer and the State Revolving Fund Coordinator.

These third proposed contract amendments are for \$50,000 each and are being presented to the Commission for approval. The contract with Xenia Rural Water District was not renewed after the FY10 amendment expired. The rationale for renewing these contracts, versus reopening a competitive solicitation, hinges on the fact that there are a limited number of utility management organizations.

Sharon Tahtinen  
Environmental Services Division  
June 21, 2011

# Appanoose, Davis, Lucas, and Monroe Counties Facilities Management Systems

## CONTRACT AMENDMENT STATEMENT OF WORK

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The scope of work for this contract amendment shall be the continued sewer planning and development for unsewered communities in the 4 county region. Job tasks to include, but not limited to, the continuing installation of the central sewer system for Phase I of the Lake Rathbun North Shore Sewer Project, the preliminary processes for Phase III of the Lake Rathbun North Shore Sewer Project including the Wastewater Facility Plan, preliminary engineering for the residential sub-divisions, and the environmental review, and the continuation of the Davis County Sewer Project.

<b>Obligation: North Shore Lake Rathbun Sewer Project Phase I</b>	<b>Task Milestone Date</b>
<b>Task 1:</b> Continued sewer construction	Projected completion: October 2011

<b>Obligation: North Shore Lake Rathbun Sewer Project Phase III</b>	<b>Task Milestone Date</b>
<b>Task 1:</b> Complete and submit for approval the Preliminary Engineer Report	Projected submittal date: July 2011
<b>Task 2:</b> Preliminary engineering for the Phase III sub-divisions	Continuous
<b>Task 3:</b> Complete Phase III environmental review	Projected completion: November 2011

<b>Obligation: Davis County Sewer Project</b>	<b>Task Milestone Date</b>
<b>Task 1:</b> Continued planning and construction	Projected completion: year 2014

## Eastern Iowa Regional Utility Service Systems

### CONTRACT AMENDMENT STATEMENT OF WORK

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Anticipated Projects	
Center Junction	Continual operations and maintenance
Andover	Continual operations and maintenance
Fairview	Continue construction of new wastewater system
Leisure Lake	Continue planning and pursuing additional funding for a new wastewater system
Petersburg	Continue planning and pursuing additional funding for a new wastewater system
Lake Delhi	Continue planning and pursuing additional funding for a new wastewater system
Elvira	Continue planning and pursuing additional funding for a new wastewater system

## Rural Utility Solutions

### CONTRACT AMENDMENT STATEMENT OF WORK

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**Existing Projects** – RUS is partnered with the following communities for construction of new wastewater systems in 2011:

- Webb Wastewater System (Clay County)
- LuVerne Wastewater System (Kossuth County)
- Linden Wastewater System (Dallas County)
- Melvin Wastewater System (Osceola County)

**New Projects** – RUS will continue to proceed with the planning stages for constructing wastewater systems for the following communities:

- Nemaha Wastewater System (Sac County)
- Gillett Grove Wastewater System (Clay County)
- Rodman Wastewater System (Palo Alto County)
- Goodell Wastewater System (Hancock County)

**Anticipated Projects** – RUS will continue working with the following communities for the development of a new wastewater system:

- Rossie (Clay County)
- County-Wide on-site proposal for USDA R&D Funding

## Regional Utility Service Systems

### CONTRACT AMENDMENT STATEMENT OF WORK

Work Plan Activities	Time Frame for Accomplishment	Project Approach
Educate city and county officials and residents regarding the importance of a viable wastewater management system.	September 2011 - November 2011	<ul style="list-style-type: none"> <li>- Engage County Boards of Supervisors on at least an annual basis to update on the progress of RUSS activities</li> <li>- Conduct outreach activities with the RUSS member counties by hosting "Town Meetings" in the prospective County, with the participation of County Supervisors.</li> </ul>
Prioritize and coordinate wastewater project funding within the service area.	November 2011 - December 2011	<ul style="list-style-type: none"> <li>- Review prioritization list of unsewered communities for each RUSS participating county.</li> <li>- Perform annual review of priorities by the RUSS Board.</li> </ul>
Continue to build the capacity of RUSS to carry out planning, operation, and management waste water services.	December 2011	<ul style="list-style-type: none"> <li>- Meet with each RUSS participating County Sanitarian to analyze the county sewer needs.</li> <li>- Investigate services that could be performed or provided by each County Sanitarian.</li> </ul>
Market RUSS services which include planning, operation, and management of waste water treatment services.	January 2012 – March 2012	<ul style="list-style-type: none"> <li>- Revise and enhance marketing tools such as brochures, FAQ's, news releases, and website, for outreach to communities and customers within RUSS service area.</li> </ul>
Assist small communities and unincorporated areas (counties) with planning of new wastewater systems or system upgrades.	January 2012 – March 2012	<ul style="list-style-type: none"> <li>- Update the Community Needs Assessment Plan based on input received from County Supervisor meetings and "Town Meetings".</li> </ul>
Develop applications for funding of new wastewater systems or system upgrades	March 2012	Based on prioritization of projects and readiness of projects; seek all available federal and state grants funding to establish affordable sewer utility fees for the LMI communities.
Investigate the ability of establishing alternative funding sources for new systems or wastewater treatment systems.	March 2012 – April 2012	<ul style="list-style-type: none"> <li>- Investigate possible diversification of funding sources for project implementation. This may include the establishment of a county revolving loan fund and securing funds through traditional financing.</li> </ul>
Provide technical and managerial services for the operation of new wastewater systems.	April 2012 – June 2012	<ul style="list-style-type: none"> <li>- Hire adequate staffing to provide effective management of completed waste water treatment systems to meet all operational and reporting requirements.</li> </ul>
Assist with construction management of new wastewater systems or system upgrades.	March 2012 – July 2012	<ul style="list-style-type: none"> <li>- Continue with the performance review of all stages of procurement of professional services, bid letting, and construction, etc.</li> <li>- Investigate the need for an additional staff person to perform construction inspection of facilities owed by RUSS.</li> </ul>
Develop agreements to provide technical and managerial services to operate existing small community wastewater systems.	June 2012 – July 2012	<ul style="list-style-type: none"> <li>- Develop agreements for management services for the range of systems owned, operated and maintained by RUSS</li> <li>- Identify the menu of services and associate costs for approval by the RUSS Board</li> <li>- Ensure that the Policy Committee provides an annual review of services and costs to make recommendations for adjustments as necessary.</li> </ul>

# Wastewater Management Services of Central Iowa

## CONTRACT AMENDMENT STATEMENT OF WORK

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The Contractor will continue its current work with unsewered communities through continued marketing efforts and contacts with affected parties. Additionally, the Contractor intends to continue its use of the Ad Hoc advisory group in an advisory capacity and assist with marketing and field contacts.

The Contractor also anticipates developing a Time of Transfer program to add an additional revenue stream to its current operation, developing a new marketing brochure to address specific concerns for small communities, and to do a thorough rewrite of its Business Plan to make it an improved business document.

Specific projects to include, but not limited to:

### Current Projects

Aurora, Butler County  
Aredale/Bristow, Butler County  
Buckeye, Hardin County  
Butler County - Subdivision of Shell Rock  
Camp Wallashuck, Marion County  
Denver Hills, Bremer County  
Dows Rest Area  
Green Mountain, Marshall County  
Pershing/Attica, Marion County  
Stout, Grundy County  
Union Grove  
Whiten, Hardin County  
Wolf Lake/Timber Valley, Marshall County

### Anticipated Projects

Austinville, Butler County  
Dutchmans Landing, Marion County  
Fern, Grundy County  
Finchford, Black Hawk County  
Garden City, Hardin County  
Greeley  
Harvester/Rhodes/Surrounding Area  
Holiday Lake, Poweshiek County  
Kesley, Butler County  
Lake Ponderosa, Poweshiek County  
Littleton, Buchanan County  
Newburg, Jasper County  
N. Marion County, Phase I  
Otley, Marion County  
Owasa, Hardin County  
Painted Rocks, Marion County  
Peosta Rural Subdivisions, Dubuque County  
Raymar Addition, Black Hawk County  
Sunset Beach, Delaware County

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

15

DECISION

TOPIC

Contract with IDALS-DSC for Nonpoint Source Program Basin  
Coordinator Staffing Assistance

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**Recommendations:**

Commission approval is requested for a 12-month amendment (amendment No. 1) to an existing service contract with the Iowa Department of Agriculture – Division of Soil Conservation (IDALS-DSC). The contract amendment will extend the expiration date of the contract to June 30, 2012. The total amount of this contract amendment shall not exceed \$203,623.

**Funding Source:**

This contract will be funded through US EPA Section 319 Nonpoint Source Program grant dollars.

**Background:**

The Department shares in the funding of three (3) full-time Basin Coordinator positions and one (1) additional half-time position in IDALS-DSC to assist the DNR in the Implementation of Iowa's nonpoint source pollution management program. Support for these shared positions has been ongoing for several years.

**Purpose:**

The purpose of this contract is to retain IDALS-DSC to assist the Department in the implementation of Iowa's nonpoint source pollution management program through the retention of three (3) full-time Basin Coordinator positions and one (1) half-time position in the DSC's Water Resources Bureau. These staff positions provide technical and administrative assistance to local soil and water conservation districts and other local watershed groups to complete watershed assessments, develop watershed management plans, and implement water quality improvement projects. The cost for these positions shall be shared equally by both parties.

**Contractor Selection Process:**

NA.

Steve Hopkins, Nonpoint Source Coordinator  
Watershed Improvement Section, Geological and Water Survey Bureau  
Environmental Services Division

June 21, 2011

**Statement of Work.** Implementation of Iowa’s Nonpoint Source Pollution Management Program is considered to be of mutual interest, and DNR and the Contractor wish to coordinate efforts to implement this program for their mutual benefit. In order to accomplish this objective the Contractor shall perform the following tasks:

Obligation	Task Milestone Date
<p><b>Task 1a:</b> The Contractor shall identify and hire, in consultation with DNR initially, and as needed to fill any vacancies, and assign three (3) qualified individuals, selected in consultation with DNR, to DSC’s Water Resources Bureau on a full-time basis. These individuals will be classified as Environmental Specialist Seniors, according to the job classifications of the Iowa Department of Administrative Services, and will be unofficially designated as regional Basin Coordinators. In addition to regular duties assigned by DSC, these individuals will each provide up to 0.5 FTE assistance to DNR in the implementation of Iowa’s nonpoint source pollution management program during the period of this contract. These assigned individuals shall be located in offices in three different river basins within the State of Iowa, as provided for in Task 1c of the Statement of Work, below.</p> <p><b>Task 1b:</b> The Contractor shall identify and hire, in consultation with DNR initially, and as needed to fill any vacancies, and assign one (1) qualified individual, selected in consultation with DNR, to DSC’s Water Resources Bureau on at least a half-time basis. This individual will be classified as Environmental Specialist Senior, according to the job classifications of the Iowa Department of Administrative Services. In addition to regular duties assigned by DSC, the Contractor shall provide up to 0.25 FTE assistance through this position to DNR in the implementation of Iowa’s nonpoint source pollution management program during the period of this contract. This assigned individual shall be located in the Contractor’s central office.</p> <p><b>Task 1c:</b> Basin Coordinator Jurisdictional Map – The Environmental Specialist Seniors assigned as Basin Coordinators in accordance with the provisions of Task 1a of the Statement of Work shall be assigned to designated basin areas in accordance with the Basin Map attached as Exhibit A of this Contract and incorporated into this Contract by reference herein.</p>	<p>No later than November 1, 2010.</p>
<p><b>Task 2a:</b> The individuals assigned by the Contractor under Task 1a of this Contract to provide services under this Contract shall provide DNR assistance with professional services and other activities pertaining to the section 319 nonpoint source program including, but not limited to:</p> <ul style="list-style-type: none"> <li>A. Advise and serve as liaison between the DNR Nonpoint Source Pollution Management Program, the Iowa Department of Agriculture and Land Stewardship (IDALS) - Division of Soil Conservation (DSC), local watershed coordinators, Soil and Water Conservation Districts (SWCD), and other local watershed groups.</li> <li>B. With respect to existing DNR supported Watershed Plans and Section 319 Watershed Projects: <ul style="list-style-type: none"> <li>a. Facilitate local watershed planning and project meetings and activities, and advise and assist watershed coordinators, SWCDs, and other local watershed groups in the development and implementation of watershed management plans, and the development and implementation of watershed projects in accordance with the watershed plan and the watershed project plan of operations and budget(s).</li> <li>b. Assist and advise watershed coordinators in building linkages with technical resource personnel from state and federal agencies and with university research and outreach personnel, to facilitate technical inputs needed for achieving watershed plan and section 319 watershed project objectives.</li> <li>c. Assist and advise watershed coordinators with reporting required by the funding sources involved in the section 319 project.</li> <li>d. Assist watershed coordinators in conducting comprehensive watershed monitoring and assessments, and implementing watershed management plans.</li> <li>e. Assess the technical accuracy of the watershed management plans and section 319 projects and provide recommendations to watershed coordinators on improving the technical accuracy of local watershed plans and projects and the technical fit of the natural resource management practices proposed to be delivered to landowners through the section 319 projects, as needed to achieve the plan and project objectives.</li> <li>f. Cooperate with staff of DNR’s nonpoint source program and with other programs within DNR to assist in carrying out the objectives of watershed management plans and implementation projects.</li> <li>g. As requested, and as coordinated through the Contractor, represent the DNR section 319 nonpoint source program at local watershed meetings and explain, among other things, available program support and applicable procedures.</li> <li>h. Inspect watershed project sites and develop case studies of successful project examples to share with DNR nonpoint source staff, US EPA, and with SWCDs and other local watershed groups developing watershed plans and/or implementation projects.</li> </ul> </li> </ul>	<p>Ongoing throughout term of the Contract.</p>

Critique watershed management plans and implementation projects and provide recommendations to increase plan and project effectiveness and/or correct program conformity problems.

- i. Provide individual and group training to watershed coordinators, as needed. Assist with planning and implementation of training for watershed coordinators at the local, regional, and state levels.

C. With respect to new DNR-supported Watershed Management Plans and Implementation Project Development:

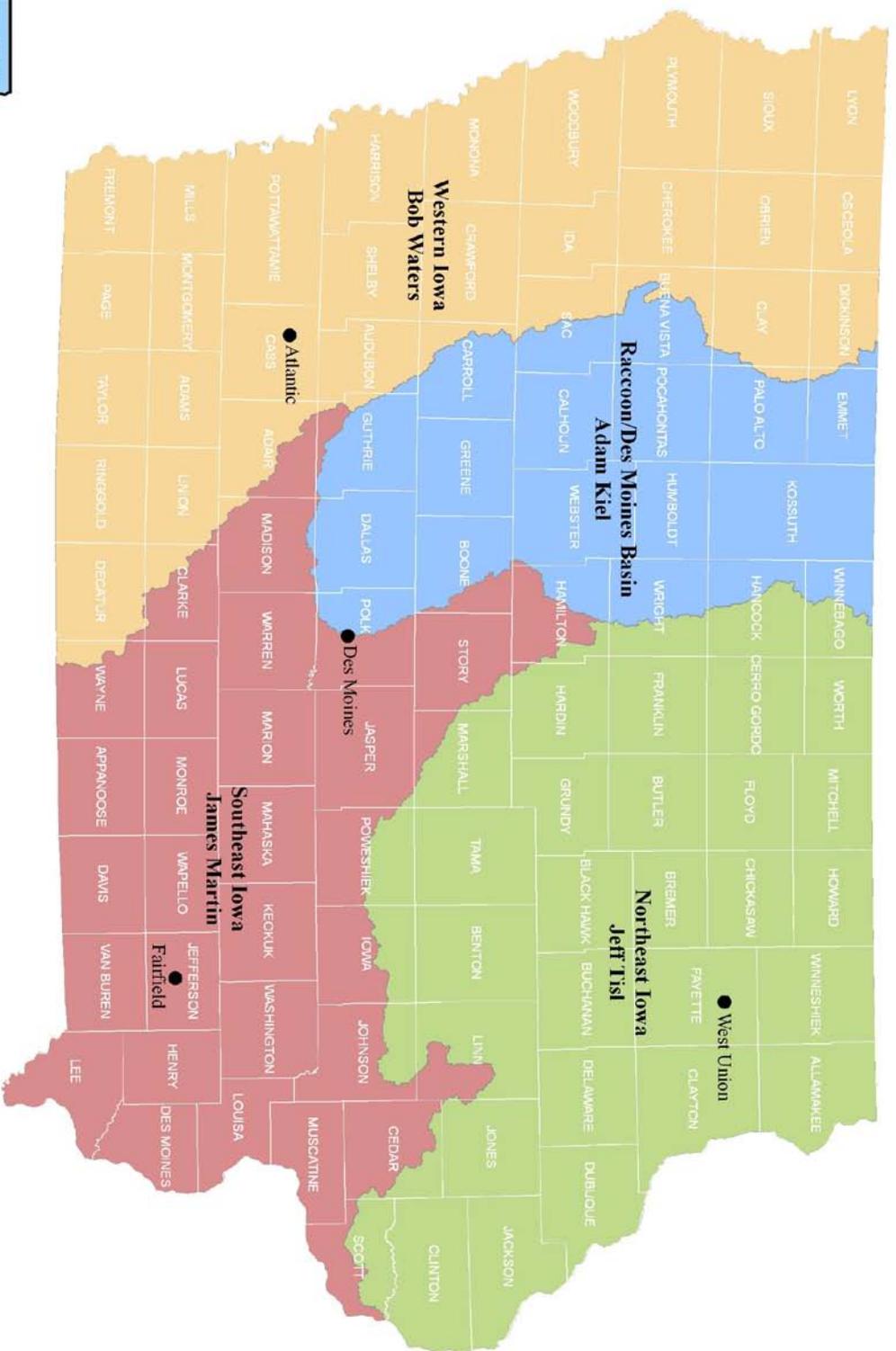
- a. Serve as a resource to and assist SWCDs and other local watershed groups with the development of new watershed management plans consistent with the US EPA and DNR watershed planning process and template.
- b. Serve as a resource to and assist SWCDs and other local watershed groups with the development of new watershed projects designed to implement watershed management plans.
- c. Offer and, where accepted, provide direct technical assistance to SWCDs, other units of local government, and other local watershed groups to assist them in the conceptualizing, organizing, and developing watershed management plans and implementation projects to address water quality protection and improvement. Initiate contacts and respond to requests from SWCDs and other local watershed groups for assistance, background information, and watershed management plan development advice. Seek input from local watershed groups on developing state watershed improvement priorities and target priority watershed areas for developing watershed management plans and subsequent improvement projects consistent with achieving US EPA and DNR performance measures and goals, and the goals of other applicable state and federal agencies. Notify local groups of state watershed improvement priorities and coordinate communication of such priorities with local decision-makers and stakeholders.
- d. Support delivery of local outreach programs with appropriate agencies, organizations, and individuals. Develop and promote interest in watershed planning and water quality improvement with rural and urban constituencies including traditional and non-traditional watershed groups and partners.
- e. Collect resource data and assemble background information for local, regional, and state planning activities that relate to watershed management and water quality improvement. As requested, and as coordinated through the Contractor, prepare technical reports, electronic data, and outreach materials for state and local audiences, and assist in the preparation of presentations related to watershed management and water quality improvement programs and plans.
- f. Assist in the development of watershed management plans and project budgets at the local level. Assist in identifying and developing alternative sources of funding for developing watershed management plans and projects. Assist in monitoring DNR section 319 nonpoint source program projects to determine if section 319 funds are being properly and completely utilized.
- g. Assist DNR nonpoint source program staff with developing statewide program guidance and annual section 319 nonpoint source program requests for proposals for watershed planning and implementation project applications. Provide publicity to watershed groups, agencies, and organizations at the state and local level. As requested, participate in the evaluation and review process for section 319 watershed plan development and/or watershed project implementation grants.

D. With respect to communication with watershed coordinators, DNR personnel, and local watershed groups:

- a. Coordinate with the DNR Project Officers in conducting 319 project performance reviews and other project site visits, and assist with follow-up on project performance issues.
- b. Participate in DNR nonpoint source program planning, marketing and coordination meetings, as requested by DNR, and coordinated through the Contractor. Communicate regularly with DNR Project Officers to coordinate communication with SWCDs, other local watershed groups, and watershed coordinators. Provide DNR Project Officers and watershed coordinators with written communication of advice and direction of a technical nature offered to watershed coordinators, as needed.
- c. Coordinate activities with the other regional Basin Coordinators and the DNR Project Officers. This includes the review and assessment of all individual watershed plans and projects; the development of technical recommendations for individual watershed plans and implementation projects in collaboration with other state and federal agency and research technical personnel; the formulation of statewide strategies for technical training and professional development of watershed coordinators, as needed; the development of overall program evaluations and recommendations for program improvement; and the development of informational outreach and educational

<p>presentations for statewide use, as needed, to support watershed management plans and water quality improvement efforts.</p> <p>E. Provide assistance in carrying out additional DNR nonpoint source program goals and initiatives, as requested by DNR, and as coordinated through the Contractor.</p> <p><b>Task 2b:</b> The individual assigned by the Contractor under Task 1b of this Contract to provide services under this Contract shall provide DNR assistance with professional services and other activities including, but not limited to:</p> <ul style="list-style-type: none"> <li>A. Provide statewide support for the DNR watershed planning program and the DSC Watershed Development and Planning Assistance Grant program.</li> <li>B. Provide statewide support to the regional Basin Coordinators in working to improve watershed planning and implementation project conceptualization from local watershed groups for section 319 nonpoint source program funding.</li> <li>C. Provide statewide technical support to the regional Basin Coordinator function.</li> <li>D. Provide technical analysis of watershed planning and water quality improvement efforts.</li> <li>E. Provide statewide administrative support for the DSC Watershed Development and Planning Assistance Grant program.</li> <li>F. Participate in DNR nonpoint source program planning, marketing and coordination meetings, as requested by DNR, and coordinated through the Contractor.</li> <li>G. Provide assistance in carrying out additional DNR nonpoint source program goals and initiatives, as requested by DNR, and coordinated through the Contractor.</li> </ul>	
<p><b>Task 3:</b> The DNR and the Contractor shall jointly convene meetings on a quarterly basis, unless needed more frequently, of DNR nonpoint source program staff, DSC water resources program staff and the regional Basin Coordinators to discuss program coordination needs, to review progress toward completion of assigned activities, and to provide direction for future activities to all parties.</p>	<p>Quarterly throughout the term of the Contract.</p>
<p><b>Task 4:</b> The Contractor shall provide supervision of the DSC personnel assigned by the Contractor to provide services under this Contract and shall provide support functions including, but not limited to, payroll, travel vouchers, all necessary office space, clerical assistance, computer support services, and a state vehicle or other suitable in-state transportation arrangements, all at the Contractor's own expense.</p>	<p>Ongoing throughout term of the Contract.</p>
<p><b>Task 5:</b> The Contractor shall submit to DNR a report of the progress made in the preceding quarter toward completion of the required professional services and activities included in this Contract. This report shall include, at a minimum, the following information:</p> <ul style="list-style-type: none"> <li>a. accomplishments during the previous quarter;</li> <li>b. professional services and work activities planned for the upcoming quarter; and</li> <li>c. any problems or concerns encountered in the previous quarter.</li> </ul>	<p>By October 15, January 15 and April 15 of each year.</p>
<p><b>Task 6:</b> The Contractor shall submit to DNR an annual report which:</p> <ul style="list-style-type: none"> <li>• describes all professional services and work activities carried out as part of the Contract during the previous Contract fiscal period (July through June);</li> <li>• discusses progress made toward achieving the overall Contract purposes, as described in this Statement of Work; and</li> <li>• identifies the total documented Contract costs incurred during the previous Contract fiscal period (July through June), the funding programs used to pay these costs, and the amounts paid by each funding program</li> </ul>	<p>By July 31 of each year.</p>
<p><b>Task 7:</b> The Contractor shall submit to DNR a final Contract report which shall contain, at a minimum:</p> <ul style="list-style-type: none"> <li>• the total federal Section 319 funds expended by the Contract;</li> <li>• a summary of other funds expended on the Contract;</li> <li>• a summary of accomplishments and objectives by the Contract during the term of the Contract;</li> <li>• a comparison of actual accomplishments to the objectives established for the Contract in accordance with this Statement of Work; and</li> <li>• if the Contract objectives were not met, an explanation as to why.</li> </ul>	<p>By no later than 45 days prior to the expiration of this Contract.</p>

# Exhibit A: 4 Basin Coordinator Areas



Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

16

DECISION

TOPIC

Contract with IDALS-DSC for Nonpoint Source Program Administrative Staffing Assistance

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**Recommendations:**

Commission approval is requested for a 12 month amendment (amendment No. 3) to an existing service contract with the Iowa Department of Agriculture – Division of Soil Conservation (IDALS-DSC). The contract amendment will extend the expiration date of the contract to June 30, 2012. The total amount of this contract amendment shall not exceed \$55,460. The original contract term (including amendments No. 1 and 2) is February 1, 2009 through June 30, 2011.

**Funding Source:**

This contract will be funded through US EPA Section 319 Nonpoint Source Program grant dollars.

**Background:**

The Department shares in the funding of one (1) full-time position in IDALS-DSC to jointly support the administration of Department section 319 and DSC WPF/WSPF watershed improvement projects with local Soil and Water Conservation Districts. Support for this shared position has been ongoing for several years.

**Purpose:**

The purpose of this contract is to retain DSC to assist the Department in the implementation of Iowa's nonpoint source pollution management program through the retention of one (1) full-time position in the DSC's Field Services Bureau for the purpose of providing administrative assistance and guidance in the development and implementation of section 319 and WPF/WSPF watershed improvement plans and projects. The cost for this position shall be shared equally by both parties.

**Contractor Selection Process:**

NA.

Allen Bonini, Supervisor  
Watershed Improvement Section, Geological and Water Survey Bureau  
Environmental Services Division

June 21, 2011

**Statement of Work.** Implementation of Iowa's Nonpoint Source Pollution Management Program is considered to be of mutual interest, and DNR and the Contractor wish to coordinate efforts to implement this program for their mutual benefit. In order to accomplish this objective the Contractor shall perform the following tasks:

Obligation	Milestone Date
<p><b>Task 1:</b> The Contractor shall identify and assign a qualified individual, selected with the concurrence of DNR, to DSC's Field Services Bureau to assist DNR and DSC in the administration and implementation of federally and state funded water quality improvement strategies, projects, and practices during the period of this contract. This assigned individual shall be located in the Contractor's central office.</p>	<p>No later than February 1, 2009.</p>
<p><b>Task 2:</b> The individual assigned by the Contractor to provide services under this Contract shall provide DNR assistance with activities including, but not limited to:</p> <ol style="list-style-type: none"> <li>a. developing and implementing of software applications to track contracts, reporting, project funding, budgets, expenditures, and cash flows;</li> <li>b. coordinating with DNR on the development of compatible tracking systems and software applications to facilitate reporting and management of water quality improvement projects;</li> <li>c. determining and reporting on personnel, physical, hardware, and software requirements and needs to accomplish electronic transmission of all section 319 project reports from individual projects through the chain of administering agencies;</li> <li>d. providing reporting guidance to individual projects;</li> <li>e. participating in the coordination and planning of twice-yearly project coordinator meetings and individual annual project review meetings;</li> <li>f. coordinating the collection, review, and processing of watershed project annual work plans and budgets;</li> <li>g. coordinating the collection and distribution of watershed project monthly financial reports, and quarterly, annual and final reports for each active watershed project that comply with project contractual conditions;</li> <li>h. attending and participating in DNR Nonpoint Source Program strategic and marketing meetings as requested by DNR; and</li> <li>i. conducting other activities supporting DNR and DSC administered nonpoint source pollution control programs and projects, as may be assigned.</li> </ol>	<p>Ongoing throughout term of the Contract.</p>
<p><b>Task 3:</b> The Contractor shall provide administrative supervision to the individual assigned by the Contractor to provide services under this Contract and shall provide administrative support functions including, but not limited to, payroll, travel vouchers, all necessary office space, clerical assistance, computer support services, and a state vehicle or other suitable in-state transportation arrangements to facilitate necessary travel to the individual, all at the Contractor's own expense,</p>	<p>Ongoing throughout term of the Contract.</p>
<p><b>Task 4:</b> The Contractor shall submit to DNR a report of the progress made in the preceding quarter toward completion of the required activities included in this Contract. This report shall include, at a minimum, the following information:</p> <ol style="list-style-type: none"> <li>a. accomplishments during the previous quarter;</li> <li>b. activities planned for the upcoming quarter;</li> <li>c. tasks completed or deliverables produced during the previous quarter;</li> <li>d. an updated schedule of upcoming deliverables; and</li> <li>e. any problems or concerns encountered in the previous quarter.</li> </ol>	<p>By January 15, April 15 and July 15 of each year.</p>
<p><b>Task 5:</b> The Contractor shall submit to DNR an annual report which:</p> <ul style="list-style-type: none"> <li>• describes all work activities carried out as part of the Contract during the previous Contract fiscal period (October through September);</li> <li>• discusses progress made toward achieving the overall Contract purposes, as described in this Statement of Work; and</li> <li>• identifies the total documented Contract costs incurred during the previous Contract fiscal period (October through September), the funding programs used to pay these costs, and the amounts paid by each funding program.</li> </ul>	<p>By October 31 of each year.</p>
<p><b>Task 6:</b> The Contractor shall submit to DNR a final Contract report which shall contain, at a minimum:</p> <ul style="list-style-type: none"> <li>• the total federal Section 319 funds expended by the Contract;</li> <li>• a summary of other funds expended on the Contract;</li> <li>• a summary of accomplishments and objectives by the Contract during the term of the Contract;</li> <li>• a comparison of actual accomplishments to the objectives established for the Contract in accordance with this Statement of Work; and</li> <li>• if the Contract objectives were not met, an explanation as to why.</li> </ul>	<p>By no later than 45 days prior to the expiration of this Contract.</p>

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

17

DECISION

TOPIC

**Contract with University of Northern Iowa for Small Business Assistance Program: Iowa Air Emissions Assistance Program (IAEAP)**

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**Recommendations:**

Commission approval is requested for a one year-service contract with the University of Northern Iowa of Cedar Falls, IA. Services are to be provided by the Iowa Air Emission Assistance Program (IAEAP) of UNI's Iowa Waste Reduction Center (IWRC). The contract will begin on July 1, 2011 and terminate on June 30, 2012. The total amount of this contract shall not exceed \$287,999.00. This contract is an Iowa Code Chapter 28E agreement.

**Purpose:**

The parties propose to enter into this Contract for the purpose of retaining UNI to sustain a small business assistance program pursuant to Section 507 of the Clean Air Act and to outline the activities and projects related to providing technical assistance to Iowa's small businesses. Particular emphasis is placed on providing general education and outreach to assist small businesses in determining and understanding their regulatory obligations, training small businesses on how to complete and submit emissions inventories, and providing assistance to the DNR in implementing NESHAP (National emission Standards for Hazardous Air Pollutants).

**Funding Source:**

This contract will be funded through cost reimbursable payments funded solely by Title V program fees. The statutory authority for the DNR to enter into this contract is under Section 507 of the Clean Air Act and 455B.133(8)(a).

**Background:**

The Small Business Assistance Program, which is mandated by Section 507 of the Clean Air Act Amendments of 1990, provides technical and non-technical assistance to small businesses. This contract establishes the requirements of Iowa's technical assistance program.

**Contractor Selection Process:**

The DNR is allowed to contract with the University of Northern Iowa without using a competitive selection process pursuant to state law.

The IAEAP was formally designated as the technical and compliance small business assistance provider in a State Implementation Plan revision that was submitted to and approved by the EPA in the early 1990s. The University of Northern Iowa's IAEAP has demonstrated itself to be an effective assistance provider to Iowa's small businesses.

Christina Iiams  
Program Planner 2  
Air Quality Bureau – Environmental Services Division  
June 21, 2010

**STATEMENT OF WORK – RESPONSIBILITIES OF THE PARTIES**

5The responsibilities of UNI shall be to perform the following tasks. Projects or activities, including solicitation of assistance, not in accordance with Section 5.1 shall not be conducted with the resources provided for in this Contract unless written approval is granted by the DNR in advance. UNI shall complete its obligations under this Contract by the Task Milestone Dates set out in Section 5.1.4.

**5.1.1 General Provisions**  
**5.1.1.1 Personnel**

1. **Personnel Commitment.** UNI represents that it has or will acquire all personnel required for the performance of the work specified under this Contract. Sufficient personnel shall be employed to perform the services of this Contract during the period of performance.
  - a) UNI shall employ two and one-half (2.5) full time equivalent (FTE) positions under this Contract. These two and one-half (2.5) positions shall be devoted to fulfilling the requirements of this Contract.
    - 1) Two of the 2.5 FTE positions shall be "professional staff" positions of fulltime IWRC employees. The "professional staff" positions shall include any of the following: "Waste Reduction Specialist", "Environmental Specialist", "Environmental Business Manager", and "Program Manager."
    - 2) Half of one (.50) of the 2.5 FTE positions shall be "support staff" positions of fulltime IWRC employees. The "support staff" positions shall include any of the following: "Director", "Associate Director", "Office Coordinator", "Information Technology Specialist", and "Graphic Designer".

Staffing requirements are specified in Table 1 below.

**Table 1: Staffing Requirements**

Position	FTE
<b>Professional Staff</b>	
Program Manager	0.7
Waste Reduction/Environmental Specialist/Environmental Business Manager	1.3
<b>Support Staff</b>	
Office Coordinator	0.15
Information Technology Specialist	0.15
Director	0.05
Associate Director	0.05
Graphic Designer	0.10
<b>Total FTE</b>	<b>2.50</b>

2. **Personnel Qualification.** All of the work and services required hereunder shall be performed by UNI and all personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services.
3. **Training.** All professional staff shall maintain familiarity with relevant air quality regulations by:
  - a) Routinely completing training courses UNI deems beneficial to providing assistance small business; and
  - b) Receiving training from DNR as required in writing by the DNR.
4. **Key Personnel.** The following individuals are designated as key personnel:
  - a) Dan Nickey, IAEAP Program Manager
  - b) Brian Gedlinske, Environmental Specialist
  - c) Jennifer Wittenburg, Environmental Specialist
  - d) Mark Williamson, Environmental Business Manager
  - e) Sue Behrns, Waste Reduction Specialist

Individuals specified as "Key Personnel" are considered essential to the work and services to be performed. If for any reason substitution for a specified individual becomes necessary, UNI shall, within ten business days, provide written notification of such to the DNR. UNI shall provide the name and qualifications of the replacement individual.

**5.1.1.2 Fiscal Reporting**

- 1. Expenditure Reports.** UNI shall report expenditures per Section 7 of this Contract. At minimum, the expenditure reports shall contain the following line item descriptions. UNI may incorporate additional sub items as are reflected in their actual accounting practices.

<b>EXPENDITURE CATEGORY</b>	<b>OVERALL TOTAL</b>
Personnel/Benefits (Total) – Not to Exceed	\$238,141.00
Personnel (FTE)	\$178,628.00
Benefits (FTE)	\$59,513.00
Travel/Training (Total)	\$14,000.00
Out of State	\$2,000.00
In State	\$12,000.00
Supplies (Total)	\$5,000.00
Computer & AV Purchases	\$3,200.00
General Supplies	\$1,800.00
Equipment (Total)	0.00
Other (Total)	\$9,525.00
Telecommunications	\$1,350.00
Postage	\$1,200.00
Printing	\$3,500.00
General Services	\$ 550.00
Lease/Rent	\$2,000.00
Software License Fee	\$ 250.00
Other Professional Services	\$ 125.00
Miscellaneous other	\$ 550.00
Indirect charges	\$21,333.00
<b>Total Project Costs – Not to Exceed</b>	<b>\$287,999.00</b>

**5.1.1.3 Data Management**

- 1.** UNI shall develop and maintain, for a minimum of three (3) years from the last date of modification, a database of small businesses contacted by UNI. The database shall include, but not be limited to, the following:
- a)** Company name;
  - b)** Company address; and
  - c)** Company phone number.
- This database shall be used by UNI to collect summary statistics for the purposes of the reporting activities required by this Contract. If requested by the DNR, facility information as maintained in the database shall be provided to the DNR within twenty-four (24) hours, unless both DNR and UNI agree that Iowa Code section 455B.484A is applicable.
- 2.** UNI shall establish and operate a toll-free telephone line to provide free assistance to small business stationary sources. Repairs to the toll free-line are the responsibility of UNI.
- 3. Web Site.** UNI shall maintain a web-site that describes services and assistance provided by the Iowa Air Emissions Assistance Program (IAEAP) and provides small business stationary sources with information on their obligations under CAAA. UNI shall ensure that:
- a)** The web-site and any links remain functional;
  - b)** The web-site shall be reviewed, at a minimum, on a quarterly basis and updated as needed, or as requested by DNR.

**5.1.1.4 Initial Contract**

- 1.** By January 15, 2012, 2012, UNI shall submit the following items to the DNR for the period of July 1, 2012 through June 30, 2013.
- a) Workplan.** UNI shall submit written justification for any proposed changes to the current work duties/responsibilities or staffing plan.

b) **Draft Budget.** A draft salary and non-salary itemized budget. UNI shall use the current budget line items (Section 5.1.1.2/1) to assist in establishing the draft budget. If requested by the DNR, UNI shall include a written justification for the proposed budget items.

1) **Salary items.** UNI shall provide the following information for each staff member as it relates to necessary SFY 2013 salary changes for the budget.

- a) Staff member's name,
- b) Position title,
- c) Personnel (salary) amounts; and
- d) Benefit amounts

2. **Review.** By March 15, 2012, UNI shall submit to DNR comments and changes proposed to the draft Contract, for the period of July 1, 2012 through June 30, 2013. Review comments shall include any proposed deletions, revisions, and additions. Justification shall be provided for any change in the draft Contract.

#### 5.1.1.5 **Final Contract Review**

1. By April 30, 2012, UNI shall submit to DNR any comments regarding the final draft Contract.

#### 5.1.1.6 **Addressing Concerns**

1. UNI shall address any comments DNR may have on any financial, non-financial report or other work product within fifteen (15) days.

#### 5.1.1.7 **Documentation**

1. UNI shall place the following statement on the cover page of all non-financial reports, including compliance assistance tools, or other informational material prepared pursuant to this Contract. This statement shall not be necessary on any quarterly or annual status reports submitted to DNR pursuant to this Contract, provided such reports are not also being used as part of a public information program.

a) The following language shall be included on all documents:

*"This (document or tool) is intended solely as guidance, cannot be used to bind the Iowa Department of Natural Resources and is not a substitute for reading applicable statutes and regulations."*

b) Any air quality compliance assistance tools funded in whole or in part by the DNR shall contain the following language:

*"The publication of this (document or tool) has been funded in part by the Iowa Department of Natural Resources. This (document or tool) is intended solely as guidance, cannot be used to bind the Iowa Department of Natural Resources and is not a substitute for reading applicable statutes and regulations."*

2. All of the information generated by the terms and conditions of this Contract shall become the property of the State of Iowa.

3. No document involving the small business assistance program created under the scope of this contract and the SBAP work plan shall be withheld from the DNR by UNI.

#### 5.1.1.8 **Intergovernmental Cooperation**

1. UNI shall collaborate, as needed, with the DNR–Air Quality Bureau, DNR-Pollution Prevention Services (P2), and the small business assistance Liaison of DED to develop and implement joint collaboration projects, evaluate the outcomes, and identify concerns.

2. In order to assure uniform adoption of emissions inventory procedures UNI shall:

- a) Participate in the development of public workshops and other educational projects, as needed.

3. **Compliance Advisory Panel.** Once the Compliance Advisory Panel (CAP) is functional, UNI shall provide assistance to the CAP as is required pursuant to

section 507(e) of the federal Clean Air Act Amendments of 1990, 42 U.S.C. § 7661f.

**5.1.2 Ongoing Work Product Provisions**  
**5.1.2.1 Program Development**

1. As necessary or requested by the DNR, UNI shall provide written comment during the rule development and promulgation of DNR air quality rules with emphasis on impacts to small business stationary sources. Written comments shall be provided within the time frame requested by the DNR or, in the case of proposed rules, no later than the day public comment closes.
2. UNI shall coordinate with DNR to develop compliance assistance tools and outreach.
  - a) "Compliance assistance tool" shall include, but shall not be limited to, any of the following items that are developed or distributed by IWRC and used to help small businesses comply with federal and/or Iowa air quality statutes, rules, or programs.
    - 1) Plain language guides or guidance sheets upon publication of final rules that may have a significant impact on small business stationary sources;
    - 2) Fact sheets or other explanatory documents that state or explain any aspect of the federal or Iowa air quality statutes, rules, or programs;
    - 3) Training documents or manuals that state or explain any aspect of the federal or Iowa air quality statutes, rules, or programs; and
    - 4) Computer applications or programs.Assistance efforts and correspondence to specific businesses shall not be considered a compliance assistance tool.
  - b) "Outreach" shall include, but shall not be limited to, face-to-face workshops, webinars, telephone calls to specific businesses as specified in Section 5.1.3.2/4, or presentations developed or distributed by IWRC and used to help small businesses comply with federal and/or Iowa air quality statutes, rules, or programs.
  - c) UNI shall comply with the following during the development of all compliance assistance tools and outreach:
    - 1) DNR and UNI shall meet, as requested by the DNR, to plan for compliance assistance tools and outreach, as necessary.
    - 2) Prior to distribution, UNI shall obtain DNR approval of any air quality compliance assistance tools or outreach funded by this Contract, to ensure the accuracy and consistency of air quality compliance assistance tools;
    - 3) UNI shall also provide DNR the opportunity to review and comment on other air quality compliance assistance tools or outreach developed outside the scope of this Contract; and
    - 4) Compliance tools and outreach shall be in accordance with the requirements of Section 5.1.1.7/1.

**5.1.2.2 Compliance**

1. UNI shall provide mechanisms for developing, collecting, and coordinating information concerning compliance methods and technologies for small business stationary sources, and programs and workshops as needed to encourage lawful cooperation among such sources, and other persons to further compliance with the federal Clean Air Act (CAA).
2. UNI shall provide mechanisms for assisting small business stationary sources with air pollution prevention and accidental release detection and prevention, including providing information concerning alternative technologies, process changes, products, and methods of operation that help reduce air pollution.
3. UNI shall inform small business stationary sources of their obligations under the CAA, and shall provide on-site audits upon request or shall refer such a source to qualified auditors.
  - a) In accordance with the prioritization guidelines established by the parties in SFY 2011, UNI shall provide on-site reviews to businesses that meet the following criteria.
    - 1) Qualify under the CAA Section 507 for assistance.
    - 2) Have not been inspected within the last three months by the DNR.

- 3) There are no other compliance resources that are applicable (i.e. webinar or workshops).
- 4) The industry has a compliance deadline in the near future (facilities under area source rules).
- 5) As requested by DNR Air Quality management.

A business must meet the first two criteria for an on-site visit. A business that meets any additional criteria will receive higher priority.

4. UNI shall ensure small business stationary sources receive notice of their rights under CAA in such a manner and form as to assure reasonably adequate time for such sources to evaluate compliance methods, and any relevant or applicable proposed or final state or federal regulation or standard.
5. UNI shall assist DNR in the consideration of requests from small business stationary sources for the modification of any work practice or technological method of compliance, or the schedule of milestones for implementing such work practice or method of compliance preceding any applicable date, based on technological and financial capability of any such small business stationary source. Assistance shall include UNI communicating to the DNR any requests for modifications and shall participate in meetings, as requested.

### 5.1.2.3

#### Emission Inventory

1. UNI shall complete the following to provide assistance to small business stationary sources (as defined in Section 507 of the CAA) with complying with Minor Source Emission Inventory Questionnaire (MSEIQs) requirements.
  - a) **Training.** UNI shall provide training to small business stationary sources to ensure compliance with MSEIQ requirements. Training may be requested by the facility or the DNR. Training shall be conducted in a format that includes, but is not limited to face-to-face workshops, webinars, presentations, telephone or electronic conversations.
  - b) **Planning Meeting.** UNI shall meet with the DNR, no later than November 15, 2011 to determine the need and/or level of assistance through training to provide to Iowa small businesses. Agenda for the meeting shall include:
    - 1) **Prioritization.** Prioritization on which small businesses to train may include, but is not limited to the following factors:
      - a) Facility demographics;
      - b) Number of affected small businesses; and
      - c) Necessary MSEI Assistance Tool Development
    - 2) **Draft Training Proposal.** Review the draft training proposal (Section 5.1.2.3/1c) as submitted by UNI;
    - 3) **Additional Items.** Additional items, as determined by both parties shall be discussed as necessary.
  - c) **Training Proposal.** UNI shall provide the DNR with a proposal for conducting MSEIQ trainings to be completed by April 30, 2012.
    - 1) The proposal shall identify, but is not limited to:
      - a) Number of trainings to schedule;
      - b) Formats to use for conducting the training;
      - c) MSEIQ assistance tools to be used or developed for use;
      - d) Summarized plan for training on electronic and hard copy submittal; and
      - e) Additional topics to cover during the proposed training dates.
    - 2) **Draft Proposal.** A draft version of the training proposal shall be submitted to the DNR no later than October 28, 2011. DNR will have any comments on the draft proposal available to UNI by November 15, 2011.
    - 3) **Final Draft Proposal.** No later than February 1, 2012, UNI shall submit a final draft proposal to the DNR.
      - a) The final draft shall include all changes as discussed during the November 15, 2011 planning meeting. DNR will have any comments or approval on the final draft proposal available to UNI by February 15, 2012.
      - b) The final draft shall not be published or incorporated until after written DNR approval of all items.

- d) **Compliance Assistance Tools/Outreach.** As per Section 5.1.2.1/2, regarding the development of necessary compliance assistance tools and/or outreach, UNI shall:
  - 1) Obtain DNR approval prior to distribution of any air quality compliance assistance tools or outreach funded by this Contract, to ensure accuracy and consistency;
  - 2) Provide DNR with when and where the outreach is being held, the time of the event, and any other logistical information as necessary; and
  - 3) Provide the DNR with a final copy of all materials used to conduct the workshops. Materials shall include but not limited to PowerPoint presentations, handouts, calculations, and brochures.
- e) **Site Visits.** Provide site visits, as determined necessary by UNI, to small business stationary sources required to complete a MSEIQ.
  - 1) UNI shall follow the prioritization protocol established in 5.1.2.2/3 for determining sites to visit.

**5.1.3 Special Work Product Provisions**

**5.1.3.1 Compliance Assistance Tools Distribution.** UNI shall continue to provide compliance assistance tools as requested by the facility or the DNR.

- 1. Should additional updates be required of any compliance assistance tools, UNI shall receive DNR approval prior to commencing updates.
- 2. All new or updated compliance assistance tools shall follow the requirements of Section 5.1.2.1/2.
- 3. UNI shall provide the DNR with a final copy of all compliance assistance tools.

**5.1.3.2. NESHAP.** UNI shall coordinate with the DNR to evaluate the impact of new Area Source NESHAP (NESHAP) on existing Iowa small businesses, and assist those businesses in understanding and complying with NESHAP. If approved in advance by the DNR for each NESHAP, the coordination shall include:

- 1. **Prioritization.** UNI shall meet with the DNR to determine the need or level of assistance to provide to Iowa small businesses. Establishing priorities may include, but is not limited to the following factors:
  - a) Facility demographics;
  - b) Number of affected small businesses;
  - c) EPA established compliance dates;
  - d) Compliance requirements (i.e. work practices, control requirements); and
  - e) Current level of air regulation (i.e. existing permit knowledge, associations providing education)
- 2. **Compliance Assistance Tools/Outreach.** UNI shall coordinate with the DNR, as per Section 5.1.2.1/2, regarding the development of necessary compliance assistance tools and/or outreach.
- 3. **Database.** UNI shall continue to maintain databases created for the purpose of tracking facilities assisted for the following NESHAP:
  - a) Paint Stripping and Miscellaneous Surface Coating Operations (6H);
  - b) Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities (6B);
  - c) Nine Metal Fabrication and Finishing Source Categories (6X); and
  - d) Prepared Feeds Manufacturing (7D)

As per Section 5.1.1.3, UNI shall provide information to the DNR as requested.
- 4. **NESHAP Permit Conditions.** UNI shall complete the following to provide outreach to small business stationary sources (as defined in Section 507 of the CAA) with complying with NESHAP conditions stated in DNR construction permits.
  - a) **Telephone Outreach.** Following approval by DNR of a final outreach plan (Section 5.1.3.2/4/c2), UNI shall provide telephone outreach to specific small business stationary sources to ensure compliance with NESHAP permit conditions.
    - 1) UNI resources for conducting this contractual obligation shall be as time allows and shall not be identified as a high priority.
  - b) **Draft Proposal.** No later than August 15, 2011, UNI shall provide the DNR with a draft proposal for outreach. The proposal shall identify, but is not limited to:

- 1) Telephone Dialog Script (plan to review permit conditions related to NESHAP);
  - 2) Process for identifying facilities to contact; and
  - 3) Process for tracking/documenting outcome of UNI outreach.
- c) **Final Outreach Plan.** No later than September 30, 2011, UNI shall submit a final outreach plan to the DNR.
- 1) The final outreach plan shall include all changes to the draft proposal as identified by the DNR.
  - 2) The final outreach plan shall not be initiated by UNI until written DNR approval of all items has been received.
- d) **Compliance Assistance Tools/Outreach.** As per Section 5.1.2.1/2, regarding the development of necessary compliance assistance tools and/or outreach, UNI shall:
- 1) Obtain DNR approval prior to distribution of any air quality compliance assistance tools or outreach funded by this Contract, to ensure accuracy and consistency;
  - 2) Provide DNR with when and where the outreach is being held and any other logistical information as necessary; and
  - 3) Provide the DNR with a final copy of all materials used to conduct the outreach. Materials shall include but not limited to telephone scripts, handouts, calculations, and brochures.
- e) **Site Visits.** UNI shall conduct site visits, as determined necessary by UNI, to small business stationary sources with NESHAP permit conditions.
- 1) UNI shall follow the prioritization protocol established in 5.1.2.2/3 for determining sites to visit.

**5.1.3.3 Open Burning Assessment.** No later than September 1, 2011, UNI shall coordinate a meeting to investigate the best mechanisms to educate Iowa small businesses on eliminating the practice of open burning.

1. Meeting attendees shall include UNI, the DNR-AQ Compliance and Enforcement staff, the Field Office Air Quality Representative, and others as deemed necessary by both parties.

**5.1.4 Summary of Obligations.** The following are obligations UNI shall complete to meet tasks identified in this Contract.

Obligation	Reference	Task Milestone Date
Maintain Database	5.1.1.3/1	Ongoing, minimum of 3 years
Toll-free Number	5.1.1.3/2	Ongoing
Maintain Website	5.1.1.3/3	Ongoing
Compliance w/ Clean Air Act (CAA)	5.1.2.2/1	Ongoing
Air Pollution Prevention	5.1.2.2/2	Ongoing
Inform of CAA Obligations	5.1.2.2/3	Ongoing
Notice of CAA Rights	5.1.2.2/4	Ongoing
Distribute Compliance Assistance Tools	5.1.3.1	Ongoing
NESHAP Database	5.1.3.2/3	Ongoing
Training	5.1.1.1/3	As Needed/Determined
Key Personnel Changes	5.1.1.1/4	As Needed
Intergovernmental Collaboration	5.1.1.8	As Needed
Written Comments to Rules	5.1.2.1/1	As Requested/Necessary
Develop Compliance Assistance Tools	5.1.2.1/2	As Necessary
Provide On-Site Audits	5.1.2.2/3	As Requested
Consideration of Modifications	5.1.2.2/5	As Requested
MSEIQ Training	5.1.2.3/1a	As Requested
MSEIQ site visit	5.1.2.3/1e	As Determined
Prioritization of NESHAP	5.1.3.2/1	As Requested/Necessary
NESHAP Compliance Assistance Tools & Outreach	5.1.3.2/2	As Requested/Necessary
NESHAP Permit Outreach	5.1.3.2/4a	As Resources Allow
Task Force/Workgroup Participation	6.2.1	As Determined
Outreach Meetings	6.2.2	As Requested
Late Work Products	6.1.2	No later than 10 days

Obligation	Reference	Task Milestone Date
Address DNR Concerns	5.1.1.6	Within 15 days
Small Business Meetings/Event Participation	6.2.3	Within 2 weeks of request
July Monthly Report	6.3.1	August 15, 2011
NESHAP Permit Outreach (Draft Plan)	5.1.3.2/4b	August 15, 2011
<b>Open Burning Meeting</b>	<b>5.1.3.3</b>	<b>September 1, 2011</b>
August Monthly Report	6.3.1	September 15, 2011
July Invoice & Supporting Documentation	7.5 and 7.5.2	September 15, 2011
NESHAP Permit Outreach (Final Plan)	5.1.3.2/4c	September 30, 2011
September Monthly Report	6.3.1	October 15, 2011
August Invoice & Supporting Documentation	7.5 and 7.5.2	October 15, 2011
Draft MSEIQ Training Proposal	5.1.2.3/1c2	October 29, 2011
October Monthly Report	6.3.1	November 15, 2011
September Invoice & Supporting Documentation	7.5 and 7.5.2	November 15, 2011
MSEIQ Planning Meeting	5.1.2.3/1b	November 15, 2011
November Monthly Report	6.3.1	December 15, 2011
October Invoice & Supporting Documentation	7.5 and 7.5.2	December 15, 2011
December Monthly Report	6.3.1	January 15, 2012
Work Plan	5.1.1.4/1a	January 15, 2012
Budget	5.1.1.4/1b	January 15, 2012
November Invoice & Supporting Documentation	7.5 and 7.5.2	January 15, 2012
Final Draft MSEIQ Training Proposal	5.1.2.3/1c3	February 1, 2012
January Monthly Report	6.3.1	February 15, 2012
December Invoice & Supporting Documentation	7.5 and 7.5.2	February 15, 2012
Initial Contract Review	5.1.1.4/2	March 15, 2012
February Monthly Report	6.3.1	March 15, 2012
January Invoice & Supporting Documentation	7.5 and 7.5.2	March 15, 2012
March Monthly Report	6.3.1	April 15, 2012
February Invoice & Supporting Documentation	7.5 and 7.5.2	April 15, 2012
Final Contract Review	5.1.1.5	April 30, 2012
MSEIQ Training Completed	5.1.2.3/1c1	April 30, 2012
April Monthly Report	6.3.1	May 15, 2012
March Invoice & Supporting Documentation	7.5 and 7.5.2	May 15, 2012
May Monthly Report	6.3.1	June 15, 2012
April Invoice & Supporting Documentation	7.5 and 7.5.2	June 15, 2012
June Monthly Report	6.3.1	July 15, 2012
May Invoice & Supporting Documentation	7.5 and 7.5.2	July 15, 2012
Final Report	6.3.4	July 30, 2012
Final Invoice & Expenditure Report	7.5 and 7.5.2	August 1, 2012

**5.2** The responsibilities of the DNR shall be to perform the following tasks.

**5.2.1 Review of UNI**

1. **Review of Work Product** Within 15 days of receipt, DNR shall review each non-financial, informational document, compliance assistance tools, or reports submitted by UNI. DNR shall provide comments based on its review. Failure of DNR to provide comments within the allotted time constitutes approval by DNR.
2. **Initial Draft Contract.** By February 15, 2012, DNR shall submit to UNI the initial draft Contract for the period of July 1, 2012 through June 30, 2013. DNR shall provide written justification for any changes to the Contract.
3. **Final Draft Contract.** By April 15, 2012, DNR shall submit to UNI the final draft Contract for the period of July 1, 2012 through June 30, 2013.
4. **Contract Negotiations.** Annually, if requested by UNI and/or the DNR, the two parties shall meet to discuss final changes to the Contract.

## 5.2.2

### Other Duties

1. **Technical Assistance.** Upon request from UNI, or as deemed necessary, the DNR shall provide technical assistance as needed.
2. **Payment.** The DNR shall withhold final payment until:
  - a) Receipt and acceptance of UNI's final performance report; and
  - b) Receipt and acceptance of all work products as required through this Contract.
3. **Training.** DNR shall provide UNI with access to training videos, workshops, and site visits that would serve as a development tool for UNI.
4. **Workspace Accommodations.** DNR shall accommodate UNI with workspace, staff accessibility, and resources should UNI decide to work in the DNR office on Air Quality projects. UNI IAEAP staff shall contact the DNR Project Manager to set up the logistics of working in the DNR office.

## 5.2.3

### Intergovernmental Cooperation

1. **Program development.** To assure uniform adoption of emissions inventory procedures DNR shall
  - a) Participate in the development of public workshops and other educational projects, as deemed necessary.
2. **Program changes.** In addition to the assistance and cooperation noted regarding specific issues above, the DNR shall make every effort to keep UNI informed of state and federal developments, which may affect the program.
3. **Joint Collaboration Projects.** The DNR shall collaborate, as needed, with UNI and the small business assistance Liaison of DED to develop and implement joint collaboration projects, evaluate the outcomes, and identify concerns.

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

18

DECISION

TOPIC

**Amendment to Contract ESDClams110002: Execution of the State of Iowa Air Pollution Control Implementation Plan: Polk County**

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**Recommendations:**

Commission approval is requested for a two (2) month extension to the current contract scope of work with the county government of Polk County; Des Moines, IA, and for the addition of a third month to allow for receipt of reports and a reimbursement request. The contract extension is necessary due to the delay in the establishment of a state budget, which prevents the establishment of a twelve (12) month agreement at this time. The amendment to the original contract will begin on July 1, 2011 and terminate on September 30, 2011. The total amount of this amendment shall not exceed \$148,705. This contract is an Iowa Code Chapter 28E agreement.

**Purpose:**

The purpose of this amendment is to extend the time of performance and provide additional funding for that purpose while the DNR and Polk County continue negotiations regarding a SFY 2012 Contract. The time extension and continued funding enables the Polk County Air Quality Division to continue to conduct programs for the abatement, control, and prevention of air pollution within Polk County as required under the current SFY 2011 Contract.

**Funding Source:**

The statutory authority for the DNR to enter into this contract is 455B.145.

This amendment contract will be funded through cost reimbursable payments funded by Title V program fees (not to exceed \$113,391), 105 federal grant dollars (not to exceed \$28,294), and 103 federal grant dollars (not to exceed \$7,000). Polk County has a funding commitment of \$34,668.00.

**Background:**

The Polk County Air Quality Division will be responsible for the ongoing implementation of an air program within Polk County, as established under the requirements of this contract. The Polk County Air Quality Division has a certificate of acceptance pursuant to Iowa Code Section 455B.145, as implemented in 567 IAC Chapter 27.

In June 2010, the Commission approved the original contract for the period of July 1, 2010 – June 30, 2011. The original contract was for an amount not to exceed \$1,081,504, to be paid in quarterly payments. The DNR and Polk County are still negotiating a new contract for the 2012 fiscal year. The DNR anticipates bringing to the Commission in August a ten (10) month contract to cover the remainder of the 2012 fiscal year.

Christina liams  
Program Planner 2  
Air Quality Bureau – Environmental Services Division  
May 23, 2011

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

19

DECISION

TOPIC

**Amendment to Contract ESDCliaams110001: Execution of the State of Iowa Air Pollution Control Implementation Plan: Linn County**

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**Recommendations:**

Commission approval is requested for a two (2) month extension to the current contract scope of work with the county government of Linn County; Cedar Rapids, IA, and for the addition of a third month to allow for receipt of reports and a reimbursement request. The contract extension is necessary due to the delay in the establishment of a state budget, which prevents the establishment of a twelve (12) month agreement at this time. The amendment to the original contract will begin on July 1, 2011 and terminate on September 30, 2011. The total amount of this amendment shall not exceed \$137,350. This contract is an Iowa Code Chapter 28E agreement.

**Purpose:**

The purpose of this amendment is to extend the time of performance and provide additional funding for that purpose while the DNR and Linn County continue negotiations regarding a SFY 2012 Contract. The time extension and continued funding enables the Linn County Air Quality Division to continue to conduct programs for the abatement, control, and prevention of air pollution within Linn County as required under the current SFY 2011 Contract.

**Funding Source:**

The statutory authority for the DNR to enter into this contract is 455B.145.

This amendment contract will be funded through cost reimbursable payments funded by Title V program fees (not to exceed \$109,835), 105 federal grant dollars (not to exceed \$21,765), and 103 federal grant dollars (not to exceed \$5,750). Linn County has a funding commitment of \$35,808.00.

**Background:**

The Linn County Air Quality Division will be responsible for the ongoing implementation of an air program within Linn County, as established under the requirements of this contract. The Linn County Air Quality Division has a certificate of acceptance pursuant to Iowa Code Section 455B.145, as implemented in 567 IAC Chapter 27.

In June 2010, the Commission approved the original contract for the period of July 1, 2010 – June 30, 2011. The original contract was for an amount not to exceed \$1,016,206, to be paid in quarterly payments. The DNR and Linn County Public Health are still negotiating a new contract for the 2012 fiscal year. The DNR anticipates bringing to the Commission in August a ten (10) month contract to cover the remainder of the 2012 fiscal year.

Christina Iiams  
Program Planner 2  
Air Quality Bureau – Environmental Services Division  
May 23, 2011

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

20

DECISION

TOPIC

**Contract with University of Iowa for 2012 SHL Services in Support of the DNR Air Quality Bureau**

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**Recommendation:**

The department requests Commission approval for a one year-service contract in the amount of \$2,045,395 with the State Hygienic Laboratory at the University of Iowa (SHL). The contract begins on July 1, 2011 and ends on June 30, 2012.

**Funding Sources:**

Funding for this contract consists of federal 103 grant funds (\$387,451), air contaminant funds (\$1,345,000), and State "Environment First" Infrastructure funds (\$312,944).

**Background:**

Under Iowa Code 455B.133, the department has responsibility for conducting ambient air monitoring in the State of Iowa. For over thirty years, the department has contracted with the Hygienic Laboratory to perform this essential service. SHL currently operates most of the ambient air monitoring sites in Iowa. It also provides analytical and technical support for ambient air monitoring activities throughout the State. It weighs and determines the ionic composition of particulate samples and performs analysis of air samples for many toxic compounds found in urban air. SHL also provides analysis of asbestos samples gathered by DNR inspectors. The SHL quality assurance group conducts annual audits of SHL ambient air monitoring activities as well as those of the Local Programs. This contract provides for a continuation of these essential services.

**Purpose:**

The parties propose to enter into this contract for the purpose of retaining SHL to perform ambient monitoring and related services in support of the department's Air Quality Bureau.

**Consulting Firm Selection Process:**

Competitive bidding was not required for this contract in accordance with Iowa Code 455B.103, which directs the department to contract with other State agencies for services, if possible. Iowa Code 263.7 establishes environmental investigations as an essential duty of SHL, and SHL has considerable experience and expertise in this area.

**Scope of Work:**

For an outline of the scope of work, see the attached, **2012 SHL SERVICES IN SUPPORT OF THE DNR AIR QUALITY BUREAU, Contract # ESD7230SFitz120008**.

Sean Fitzsimmons  
Environmental Specialist Senior  
DNR - Air Quality Bureau  
Environmental Services Division

Memo Date (5/25/2011)

Attachment(s): Special Conditions for Contract: ESD7230SFitz120008

## STATEMENT OF WORK

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**5.1 Statement of Work.** Contractor shall perform the tasks indicated below on the schedule described in Appendices A and C.

### 5.1.1 STAFFING

Paul Lang, Leonard Marine, Bill Christensen, and Randy Hudachek are considered “key personnel” for the purposes of this contract. Key personnel are essential to the work and services to be performed. If for any reason substitution for a specified individual becomes necessary, SHL shall provide immediate written notification of such to the Department. SHL shall provide the name and resume of qualification for the replacement individual.

### 5.1.2 QUALITY ASSURANCE

#### **5.1.2.1 Internal Quality Assurance Activities (Within SHL's Reporting Organization)**

Quality System. SHL shall develop and implement a Quality System in accordance with EPA guidance in order to assure the quality of its air monitoring activities. The Quality System developed by SHL shall be completely autonomous from that of the DNR in the sense that the responsibility for developing procedures and oversight sufficient to demonstrate that the environmental data generated by SHL meets the requirements of EPA and/or the DNR rests solely with SHL. This will include development and implementation of a Quality Management Plan (QMP) according to EPA guidance document QA/R-2, development and implementation of Quality Assurance Project Plans (QAPP's) consistent with EPA guidance document QA/R-5, and development and implementation of Standard Operating Procedures (SOP's) for operation of air monitoring equipment, data handling, laboratory analyses, and other repetitive procedures. The QAPP/SOP shall be modified as necessary to remain current with EPA requirements outlined in 40 CFR Part 58, the current edition of EPA's Quality Assurance Handbook for Air Pollution Measurement Systems ("the Redbook"), and applicable EPA guidance or DNR agreements. SHL shall designate members of its Air Monitoring Staff as QAPP/SOP reviewers. A complete set of QMP/QAPP's/SOP's for all air monitoring activities shall be submitted to the Department and EPA in hard copy and in PDF format as a component of the annual review of air monitoring activities.

Revision of Quality Assurance Documents. Substantive revisions of SHL's QMP/QAPP's/SOP's require approval of the Department and EPA. Electronic copies of all proposed revisions to quality assurance documents shall be provided to the Department at least fifteen (15) days prior to implementation, unless this review period is waived by the Department. QAPP/SOP revisions shall be submitted to EPA/DNR within forty (40) days following (1) promulgation of new monitoring rules or procedures by EPA, or (2) written notification of a deficiency in procedures by EPA/DNR. Upon receipt of new equipment for which no QAPP/SOP exists, SHL shall develop a new SOP for operation of the equipment within sixty (60) days of equipment receipt. SHL shall not deploy monitoring equipment without an associated QAPP/SOP.

EPA Audit programs. SHL shall participate in EPA's National Performance Audit Program (NPAP), the performance evaluation program (PEP) for PM<sub>2.5</sub> monitoring, and EPA technical systems audits (TSA's) as requested by the department. SHL shall fund at least one annual NPAP audit for all monitors for which NPAP audit devices are available. SHL shall conduct additional audits including but not limited to performance audits, systems audits, and review of quality assurance documents (e.g. QMP's, QAPP's or SOP's) at the request of the DNR.

Annual Network/Quality Assurance Review. On an annual basis, SHL shall demonstrate that its quality system is sufficiently developed, and that its monitors are appropriately sited and adequate in number to meet EPA's minimum requirements. In addition, SHL shall review its AQS/PARS data and site/monitor parameters in the AQS database for errors during the previous calendar year, and then generate graphical and statistical summaries of the data. SHL shall evaluate the data relative to EPA acceptance criteria for data completeness, precision and accuracy. On the basis of this review, SHL shall submit its annual State and Local Air Monitoring Stations (SLAMS) certification letter. The Annual Network/Quality Assurance review shall contain the following components:

- a complete, current set of Quality assurance documentation (QMP/QAPP's/SOP's) submitted to the Department in electronic format (PDF),
- AQS/PARS raw data listings generated from the AQS system (AQS AMP250 and AMP350 reports) in electronic format for all monitors operated by SHL for the calendar year under review,
- graphs of concentration vs. time submitted in hard copy and electronic formats for all monitors operated by SHL for the calendar year under review,

- complete, current National Ambient Air Monitoring Technical Systems Audit Form contained in Volume II Appendix H, of EPA's Quality Assurance Handbook for Air Pollution Measurement Systems (rev 12/10/08), in hard copy and electronic formats,
- an annual quality assurance report following the example contained in Volume II Appendix I, of EPA's Quality Assurance Handbook for Air Pollution Measurement Systems (rev 12/10/08), in hard copy and electronic formats,
- written reports of findings and recommendations based on the annual review in hard copy and electronic formats,
- an annual SLAMS report (AQS AMP450 and 450NC), a summary report of precision and accuracy data (AMP255), along with a letter certifying the accuracy of the reports based on a review of all materials contained in the annual review in hard copy and electronic formats.

The Annual Network/Quality Assurance Review shall be submitted to the Department by March 15.

SHL will conduct an annual systems audit of the toxics and filter weighing laboratories using a protocol approved by the Department and consistent with EPA Guidance (EPA QA/G7). Reports summarizing the most recent toxics and filter weighing laboratory audits shall be submitted to the Department as a component of the Annual Network/Quality Assurance Review.

#### **5.1.2.2 External Quality Assurance Activities (Outside SHL's Reporting Organization)**

Polk and Linn County Quality Assurance Audits. SHL will perform quality assurance reviews of the Polk and Linn County Local Programs air quality laboratories and monitoring programs using the forms and procedures found in Volume II, Appendix H, of the Quality Assurance Handbook for Air Pollution Measurement Systems (rev 12/10/08). The questionnaires shall be completed and submitted to the Department by SHL no later than March 15, and written reports of findings and recommendations will be provided, in duplicate, no later than April 1, or within two weeks of receipt of completed questionnaire from Polk and Linn Counties, whichever is later.

Prevention of Significant Deterioration (PSD) Ambient Monitoring Sites. Within 30 days of DNR's written request SHL will review and provide written comments on the standard operating procedures and quality assurance plan components of facility PSD ambient monitoring plans. SHL will continue to work with facilities to ensure that the data gathered during the monitoring period is of acceptable quality. SHL shall observe and evaluate (quarterly) site audits of facility-run PSD ambient monitoring sites at specified PSD facilities. These site audits are to be performed in accordance with Appendix A of 40 CFR Pt. 58. Within 2 weeks after the site audit, SHL will provide, in writing, the audit results and any recommendations for corrective actions to both DNR and the field staff operating the PSD site(s). To ensure format compatibility with EPA's AQS database, SHL will provide quality assurance reviews on ambient monitoring data generated by facility-run PSD monitoring sites, as specified by DNR within 30 days of DNR's written request. The number of PSD monitoring sites shall be limited to no more than four sites per year. SHL will be compensated for additional sites at the rate of \$1000 per site, to be billed to its "Operation and Expenses" variable cost line item.

### **5.1.3 EXISTING NETWORK AND NETWORK MODIFICATIONS**

Network Modifications. SHL shall operate the monitoring network indicated in Appendix B with modifications as indicated in Appendix C. In addition, SHL shall work with the DNR to site additional monitors in response to public health concerns that develop during the contract period, as resources and time allow.

New Monitoring Sites. Potential monitoring sites will meet the specifications set forth in Appendices D and E of 40 CFR 58. SHL shall not set up a new monitor site, dismantle an existing monitor site, or relocate any existing monitors without written approval from DNR.

Change in Sampling Frequency. SHL shall change sampling frequency at a monitor site within 30 days of written notice by the DNR.

### **5.1.4 NETWORK PLANNING**

Training and Safety Plan. SHL shall implement training and safety plans developed for all air monitoring staff. SHL shall ensure that its staff are adequately trained and work in a safe environment. SHL shall present its training schedule at each quarterly management meeting.

Quarterly coordination meetings. Quarterly meetings will be arranged for technical staff involved in the air quality program. The meeting will focus on data collection, transmission and quality assurance issues and trends.

Inventory. SHL shall maintain a complete and current list of all equipment which is part of the air monitoring system in the state of Iowa, including the location, description of equipment type, model number, serial number, ownership agency, and both DNR and SHL inventory tag number. SHL shall record in the equipment inventory the installation date for any equipment newly installed in the air monitoring system.

For the purposes of this agreement, equipment is any item that has an acquisition value of \$5,000 or more and an anticipated useful life of one year or more. See Chapter 110-110.2(1) of the Iowa Administrative Code.

This agreement shall supersede any and all agreements by and between the Department and SHL with respect to equipment. Equipment purchased under previous Department/SHL agreements or purchased through amendment to this agreement is to be listed on the joint Department/SHL equipment inventory. SHL shall ensure through the University of Iowa equipment inventory process that all equipment listed on the joint Department/SHL inventory has been marked with University of Iowa property tags.

Equipment listed in the Department/SHL Equipment Inventory was obtained in part from federal grant funds. In accordance with Title 40 Code of Federal Regulations, Part 30, the Department as the grantee agency retains title to all equipment listed on the Department/SHL Inventory and may require its return upon 30 days written notice.

SHL shall account for all equipment on the Department/SHL equipment inventory in the event of damage, loss or theft incurred through normal usage.

SHL shall use the equipment in a careful and proper manner and provide routine repairs, service and supplies required for the normal operation of the equipment.

The Department and SHL shall agree in writing prior to subleasing or transferring rights to the equipment to any third party.

The Department shall have the right to enter the premises where the equipment is located for the purpose of inspecting the equipment at any reasonable time.

SHL shall submit to the Department an annual inventory of joint Department/SHL equipment. The following shall be included as part of such inventory.

- UI property tag number.
- Equipment description.
- UI purchase order number.
- UI purchase order date.
- Equipment cost as shown on invoice.
- A list of additions to the previous year's inventory including the cost for each item and the total cost.
- A list of deletions from the previous year's inventory including the cost of each item, total cost and reason for deletion.
- An inventory balance sheet including totals as follows:
  - Previous years inventory total;
  - Current years deletions total;
  - Current years additions total;
  - Current years inventory total.
- Signed certification that the inventory as presented is true and correct.

Equipment costs shall not change once listed on the Department/SHL joint property inventory. Equipment parts that are added to or removed from existing equipment shall be handled in the following manner:

- Parts that do not fit the definition of equipment used in this agreement shall not be accounted for on the joint property inventory.
- Parts that do fit the definition of equipment used in this agreement shall be tagged and listed individually on the joint inventory.

These provisions do not apply to integral component parts utilized in the repair of equipment and necessary to continued operation of the equipment.

Network Planning Report. SHL shall submit a proposal for additional equipment or staff desired for the next contract by February 15.

Annual Review of Computer Security. SHL shall submit an annual review of its computer security plan to the Department by August 1. This plan shall indicate the strategy by which SHL shall insure the security of all data gathered under the terms of this contract. This review shall include a review of remote computers and data acquisition systems. The plan will be reviewed and signed by SHL's computer services supervisor.

Existing Vehicles. Eleven vehicles will be maintained and utilized by SHL for exclusive use by air quality personnel solely for the operation of the ambient air monitoring network. The current inventory includes: Vehicle #1, license number 8472, Vehicle #2, license number 10382, Vehicle #3, license number 10071, Vehicle #4, license number 8479, Vehicle #5, license number 8470, Vehicle #6, license number 8454, Vehicle #7, license number 9941, Vehicle #8, license number 10265, and Vehicle #9, license number 9939. Vehicles #10 and #11 are currently ordered. The Department will not be responsible for mileage costs for a replacement vehicle(s) except for periods of time when the vehicle being replaced is undergoing repairs or maintenance, or when additional vehicles are needed.

New Vehicles. SHL will purchase two new cargo vans (or two other service vehicles, as needs require) for exclusive use by air quality personnel solely for operating the ambient air network, with funds to be provided by the DNR for this purpose. The vans shall be purchased no later than March 15, and, once purchased, shall be included in the equipment inventory.

Vehicles to be Retired. Vehicles taken out of service by SHL shall be disposed of through a state vehicle auction. Proceeds from the sale of auctioned vehicles shall be returned to the contract funds through a credit on the monthly billing report.

#### **5.1.5 DATA MANAGEMENT**

Data Validation. Data obtained from ambient monitors shall be validated as specified in the approved QAPP and in this scope of work.

Data Validation for Continuous Monitors. SHL shall store short term (5 minute) monitoring data for the purpose of validation of all hourly continuous monitoring data. This data may be captured either by daily polling of all monitors, or by on site storage of short term data using ESC's "Digitrend Site" software.

Real-time monitoring. SHL shall display real-time monitoring data in hourly and AQI formats on its web site, and post data to EPA's ozone and particulate mapping server within 25 minutes after the end of each hour. SHL shall establish procedures and assign personnel to ensure that continuous data is being transmitted successfully to the EPA AirNOW website and the SHL real-time website. SHL shall ensure that real-time data are processed and posted to the SHL and AirNOW websites on a timely basis. Communications, download, and upload problems greater than four hours in duration shall be documented and submitted to the DNR in the monthly report, including any corrective actions taken to resolve such problems. Procedures and frequencies for polling and posting data shall be as indicated in SHL's real-time monitoring QAPP/SOP. SHL will upload all non-continuous data to the SHL real-time website on the same schedule that the data is submitted to the AQS database. SHL shall provide charts of FRM versus real time (continuous-derived) concentrations for all continuous PM monitoring sites on its web-site.

Site Setup and Closure in AQS. SHL shall be responsible for opening and closing sites and monitors in the AQS database for its reporting organization, and for its monthly data uploads. SHL shall contact the DNR in order to confirm new site or monitor setup parameters are accurate before uploading the new parameters to the database. SHL will not close sites or monitors in the AQS database without approval from the DNR. SHL will inform the Department via e-mail whenever modifications to the AQS database are made. This notification shall contain a note of explanation of the modifications made and the rationale for the modifications.

AQS/PARS Data Submission. Validated monitoring data (AQS data) and precision and accuracy data (PARS data) for all continuous monitors shall be uploaded by SHL staff to the AQS system by the 15th of the month following the month in which it is collected. Validated monitoring data and precision and accuracy (PARS) data for all gravimetric filter samplers shall be uploaded to AQS within 30 days of the end of the month in which it is collected. Data from samplers requiring laboratory analysis for ions, manganese, metals, and toxics shall be uploaded to the AQS database with a goal of 45 days from the end of the month in which it is collected. Data from samplers requiring laboratory analysis for lead shall be uploaded to the AQS database within 45 days from the end of the month in which it is collected. SHL will inform the Department via e-mail after completing its monthly data uploads. This report shall include a copy of the final version of

the screening file, and copies of the edit and scan checks. In the event that the monthly data upload is not complete, this report shall indicate the reason for the backlog and the anticipated date when the backlogged data will be uploaded.

Data Screening. SHL shall archive an AQS AMP120 to document the data uploaded immediately after each data file is loaded into the system.

Monthly AQS Record keeping Requirements. On a monthly basis, SHL shall:

- o run and review the AQS AMP250 and AQS AMP350 monitor reports to determine the completeness and accuracy of the AQS and PARS data uploaded by SHL to the AQS system.

Quarterly AQS Record keeping Requirements. On a quarterly basis, SHL shall:

- o run and review the AQS AMP246, 247, and 250 reports to evaluate the PARS data uploaded by SHL;
- o run and review two AQS AMP255 reports, one for the current quarter, and a cumulative AMP255 covering all quarters since the previous data certification;
- o run and review the AQS AMP430 report in order to evaluate the quarterly data completeness of the monitors operated by SHL;
- o run and review the AQS AMP380 report in order to evaluate the accuracy and completeness of the site setup parameters of the monitors operated by SHL.

### 5.1.6 REPORTS

Immediate Reports. SHL will notify the Department immediately upon identification of any exceedance of an ambient air quality standard, emergency episode or potential emergency episode (as defined in 567 IAC 26.2), or exceedance of any other pollutant threshold provided in writing by the Department.

Weekly Network Status Report. SHL will transmit a written report of the status of air monitoring systems to the DNR Project Manager on the first working day of every week. This report will note any sites or monitors that have been added or removed from the network during the previous week. For each site that is modified or for which data are missed, the report will also include:

- o date of last valid data;
- o date inoperative condition detected;
- o cause of inoperative condition;
- o step(s) taken to correct condition;
- o expected date data reporting will resume.

Monthly Monitoring Reports. SHL will submit to the DNR Project Manager, a monthly report within fifty (50) days of the end of each month. This report will include a list of fixed station air monitoring sites in operation during the report period, and for each station:

- o the number of samples collected or received;
- o the number and type of analyses performed;
- o the number of exceedances of ambient air quality standards, the number of emergency episodes or potential emergency episodes, and the number of exceedances of pollutant thresholds;
- o a listing of all sampling that was omitted by reason of equipment failure, calibration, zero and span checks, sample handling accident, laboratory accident or failure of the operator to collect samples; the type and number of equipment failures; corrective actions taken to mitigate sampling failures;
- o a complete listing of the scheduled number of checks and actual completion dates for PARS precision and accuracy checks and calibrations on each monitor or analyzer as well as an explanation and corrective actions taken for calibrations, precision checks, or audits that were not performed on schedule or did not meet acceptance criteria listed in the QAPP and SOP's;
- o the percentage of total possible samples which were translated into valid air quality data;
- o a listing of all backlogged AQS or PARS data, the reason for the backlog, and the date when the backlogged data will be uploaded to AQS.
- o A performance evaluation of the "Smart Heaters" on the BAM 1020 PM2.5 monitor(s).
- o a summary of the availability of real-time air monitoring data, including a description of any issues with communication, download or upload of data that causes a delay in reporting data to the SHL or AirNOW websites of greater than four hours, along with a corrective action plan to address these issues.
- o Zero air test data for all continuous particulate monitors.

Quarterly Monitoring Report. SHL will submit to the DNR Project Manager, a quarterly report within fifty (50) days of the end of each calendar quarter. This report will include a list of fixed station air monitoring sites in operation during the report period, and for each station:

- o the data completeness associated with each monitor; and, in the event the percentages do not meet EPA completeness criteria, an explanation of the reasons for the insufficient data and corrective action plan for the monitor;
- o the scheduled number of checks and actual completion dates for PARS precision and accuracy checks and calibrations on each monitor or analyzer as well as an explanation and corrective actions taken for calibrations, precision checks, or audits that were not performed on schedule or did not meet acceptance criteria listed in the QAPP and SOP's;
- o the precision and accuracy quarterly rollup for all monitors or analyzers operated during the quarter, calculated as specified in 40 CFR Pt. 58 App. A. The QA officer shall certify that QA has been completed as well as any corrective action plans for analyzers that may be in danger of not meeting Appendix A requirements;
- o a listing of all backlogged AQS or PARS data, the reason for the backlog, and the date when the backlogged data will be uploaded to AQS.
- o an AMP255 report for the quarter being summarized as well as an AMP255 report for the year through the end of the quarter being summarized. The report will indicate if the number of precision checks and accuracy audits that were done; is at least equal to the minimum required by 40 CFR Pt. 58 App A, the EPA's QA Handbook ("Redbook"), or other agreements between the DNR and SHL (whichever is greater). The Report shall also include a detailed comparison between precision and accuracy results, and the relevant acceptance criteria. In the event that the acceptance criteria are not met, or the cumulative AMP255 suggests they are unlikely to be met for the year, a corrective action plan shall be included.

Inventory Reporting. SHL will supply to the Department a copy of the complete up to date equipment inventory within seven days of a request by the Department during the agreement period.

#### **5.1.7 PM10, PM2.5, PM2.5 SPECIATION, AND TOXICS ACTIVITIES**

- o Third Party Contractors for lead, PM10, PM2.5 Federal Reference Method, and IMPROVE Visibility Sampler Operations. Where 3rd party filter collectors are used to gather lead, PM10, PM2.5, or visibility filters within the SHL reporting organization, SHL shall perform all operations except for impactor replacement, filter collection, and transmission of sampler performance data to SHL and the national visibility laboratory. SHL's duties include, but are not limited to, the performance of all calibrations, audits, and routine maintenance for all lead, PM10, PM2.5, and visibility monitors within their reporting organization. For new sites where 3rd party operators are to be employed, SHL shall locate qualified 3rd party operators and train them to operate samplers in accordance with the SHL's standard operating procedures developed for 3rd party operators. SHL shall manage 3rd party operators to insure that the data generated meets Department goals for completeness and data quality. SHL shall supply a certified IMPROVE auditor and conduct quarterly audits on IMPROVE samplers.

PM2.5 Speciation Activities. SHL shall perform the following activities in support of the PM2.5 speciation network:

- o Field Activities. SHL shall perform all field activities at speciation sites specified in this agreement including canister replacement and filter collection and transmission of sampler performance data to EPA's National Speciation Laboratory. In addition, SHL shall be responsible for the performance of all calibrations, audits, and routine maintenance for all PM2.5 speciation monitors.  
Data validation and AQS maintenance. SHL shall be responsible for setting up or shutting down speciation sites in AQS and shall validate speciated PM2.5 data in cooperation with EPA's National Speciation Laboratory.

Toxics Analysis Laboratory. SHL shall manage and operate the State's air toxics analysis laboratory in support of the State toxics monitoring network. The laboratory shall provide support and analysis for toxic samplers operated by contractors, the Local Programs, or by SHL, as directed by the DNR. The SHL toxics laboratory shall:

- o operate all laboratory equipment in accordance with EPA/DNR approved QAPP, SOP's, and manufacturer's operation manuals;
- o analyze canister and cartridge samples as well as other appropriate samples as determined by the DNR;
- o conduct a method detection limit analysis for toxics at a minimum annual frequency;
- o clean and evacuate sampling canisters and maintain an inventory of clean, evacuated canisters sufficient for low toxics monitoring sites;
- o provide shipping containers, coolers, thermometers, and ice substitute packs as needed to insure sample handling is conducted in accordance with the QAPP and SOP's;

- maintain an inventory of supplies and consumables sufficient to support toxic monitoring efforts in the State;
- report toxic data analysis results to the Department with a goal of 45 days from the end of the month when the samples were collected. Immediately report toxic sample analysis results if sample dilution is necessary to lower the sample concentration to within the calibration range of the instrument.
- Enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with the MDL for each concentration.

Toxics Monitoring Activities. SHL shall perform the following toxic monitoring activities in support of the State toxics monitoring network.

- Field Activities. SHL shall perform all field activities at toxic monitoring sites in the SHL network. These duties include sample collection, calibrations, audits, and routine maintenance for all toxics monitors. These duties shall be performed in accordance with EPA/DNR approved QAPP and SOP's.
- Data validation and AQS maintenance. SHL shall be responsible for setting up or shutting down toxics sites in AQS and shall validate toxics data in accordance with EPA/DNR approved QAPP and SOP's. SHL shall upload toxics data to AQS unless otherwise directed by the Department.

Ion monitoring and analysis activities.

- SHL shall coat and extract denuders, and perform ion analysis for particulate filters as requested by the DNR during the contract year. Ion sampling and analysis shall be conducted following QAPP's and SOP's approved by the Department. SHL shall conduct a method detection analysis for ions analyzed on each type of filter substrate at a minimum annual frequency. Enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with the MDL for each concentration.
- SHL shall provide the results of the ion analysis to the Local Programs in a format that can be directly uploaded to AQS. For ion samples collected by SHL, the associated data shall be loaded to AQS with a goal of 45 days from the end of the month in which the samples were collected. For samples collected by the Local Programs, the data shall be sent by e-mail to the Local Programs and to the DNR with a goal of 45 days from the end of the month in which the samples were collected.

Teflon Filter Weighing Laboratory. SHL shall manage and operate the State's Teflon filter weighing laboratory. This laboratory shall provide support for Teflon filter monitors run by contractors, the Local Programs or by SHL, as directed by the DNR. SHL shall:

- operate in accordance with DNR/EPA approved QAPP's and associated SOP's for all Teflon filter weighing laboratory operations;
- order filters and manage the Teflon filter inventory so that sufficient filters are available in order to meet the sampling needs of its customers;
- pre-weigh the filters, load them into clean filter holders, and load the filter holders into clean filter magazines within the laboratory;
- provide shipping containers to mail the filter magazines to the field operators;
- provide coolant and thermometers to ensure that the loaded filters are adequately cooled in transport from the field back to the weighing laboratory;
- equilibrate and weigh the loaded filters, and provide the results of the gravimetric analysis along with all other laboratory data required for upload to the AQS system to its customers in a format that can be directly uploaded to AQS. The data shall be sent by e-mail to all customers and DNR Local Program contacts within 30 days of the end of the month in which the data were collected;
- archive all Teflon filters, as well as filters from portable samplers where directed by the DNR, in refrigerated storage for a minimum of 1 year in accordance with EPA guidance;
- arrange for SHL staff to pick up filters from the Polk County Local Program.

Lead/Metals Analysis Laboratory. SHL shall manage and operate the State's air lead/metals analysis laboratory in support of the State monitoring network. The laboratory shall provide support and analysis for lead/metals samplers operated by contractors, the Local Programs, or by SHL, as directed by the DNR. The SHL lead and metals laboratory shall:

- operate all laboratory equipment in accordance with EPA/DNR approved QAPP, SOP's, and manufacturer's operation manuals;
- conduct a method detection analysis for metals for each analyte on each filter substrate at a minimum annual frequency;
- analyze filter samples as determined by the DNR;
- provide shipping containers, coolers, thermometers, and ice substitute packs as needed to insure sample handling is conducted in accordance with the QAPP and SOP's;

- o maintain an inventory of supplies and consumables sufficient to support lead and metals monitoring efforts in the State;
- o report metals data analysis results to the Department and upload to the AQS database with a goal of 45 days from the end of the month in which the samples were collected.
- o report lead data analysis results to the Department and upload to the AQS database within 45 days from the end of the month in which the samples were collected.
- o Enter all non-zero values (even if less than the MDL or IDL) into the AQS database along with the MDL for each concentration.

#### **5.1.8 TECHNICAL ASSISTANCE**

Technical Assistance to the Local Programs. SHL shall provide technical assistance to the Local Programs in cooperation with the department in matters related to the operation of the local monitoring networks.

#### **5.1.9 SPECIAL PROJECTS**

SHL shall complete the following special projects:

New Monitoring Sites. SHL shall install new monitoring sites and discontinue sites/monitors as indicated below and in Appendix C.

Discontinue ammonia sampling NCore site, July 1.

Discontinue continuous sulfate monitoring NCore site, August 1.

Install a bottled gas based sulfur dioxide auto-calibration system for nightly checks at Musser Park. The system shall be fully operational by August 1.

New SO<sub>2</sub> and MET monitors located at Greenwood Cemetery. Monitors shall be operational by January 1.

Add PM<sub>10</sub> Sampler to Backbone State Park (1:3) Monitor shall be operational by January 1.

Install a trace-level NO<sub>2</sub> monitor at the Lake Sugema site. Monitor shall be operational by January 1.

New Ozone Monitoring Sites. SHL shall locate new sites as required for the ozone monitoring rule expected to be promulgated by the end of July, 2011. All new ozone site locations shall be identified by April 1.

New SO<sub>2</sub> and MET Monitoring Site near Sioux City. SHL shall locate an appropriate monitoring site near Sioux City, and shall install a shelter and SO<sub>2</sub> monitor with auto-calibration. The site shall be fully operational by June 30, or 90 days after DNR has arranged for SHL to have access to the monitoring site, whichever is later.

Zero Air Testing for Continuous PM<sub>2.5</sub> Monitors. Prior to or upon initial deployment and semi-annually thereafter and after any substantial maintenance, SHL shall perform zero air testing on each continuous PM<sub>2.5</sub> monitor. The test must be performed for a minimum of seventy-two hours, and no data shall be reported from the instrument until a successful zero air test has been performed. Successful tests shall meet the criteria defined in the continuous instrument's SOP.

PM<sub>2.5</sub> Audit Sampling. SHL shall operate a PM<sub>2.5</sub> audit sampler at locations selected by the Department during the contract period.

Survey Sampling/ Public Outreach. Within 30 days of a request by the Department, SHL will perform monitoring using portable samplers or passive samplers at sites designated by the Department. Within 30 days of sampling or passive sampler analysis, SHL will issue a report summarizing the results and methodology used in the survey. Before initiating survey or passive sampling, SHL will develop QAPP's and SOP's for siting survey or passive samplers, calibration and operation of sampling equipment, analytical methods used to develop samples, and data reduction and analysis techniques. In addition, within 30 days of a request of the Department, SHL shall distribute portable or passive samplers to members of the public and train them in the operation of these samplers. The SHL or other DNR approved laboratory shall be responsible for analyzing the results of these sampler runs, and submitting a report to the sample operator and to the DNR within 30 days of a sample run.

Backup Continuous Monitors. Within 30 days of a request by the DNR, SHL shall install and operate backup continuous samplers in the SHL network. Precision checks, audits, and calibrations shall be performed on the backup monitors in the same manner as for the primary monitor. Data from the backup sampler shall be used to validate the monitoring data and to substitute for primary monitor data should the primary monitor fail.

Digital Data Capture. SHL shall configure continuous monitors for digital data capture at monitoring locations where it is practical and feasible.

#### **5.1.10 SUPPLEMENTAL ANALYTICAL SERVICES**

- Toxics analysis. Toxics analysis costs for the contract period shall be \$300 per TO-15\* analysis and \$167 per TO-11A analysis.
- Ion analysis. Ion analysis costs for the contract period shall be \$23 per sample for sulfate or nitrate analysis, \$36 per sample for both sulfate and nitrate analysis.
- Asbestos analysis. Asbestos analysis costs for the contract period shall be \$36 per sample.
- Lead or manganese analysis\*(GFAA). Lead or manganese analysis costs for the contract period shall be \$10 per metal analyzed and \$10 per digestion required.
- Metals analysis (ICP-MS). Metals analysis costs for the contract period shall be \$13 per metal analyzed plus \$10 per digestion required.

\*The Department has purchased the analytical equipment.

#### **5.1.11 ASBESTOS NESHAP PROGRAM**

Asbestos Samples Submitted by the Department. SHL will analyze all samples submitted by departmental staff as described in the second paragraph of this section. Sample containers for sample transport will be provided by SHL. The results of the tests will be forwarded to the Air Quality Section within fifteen (15) calendar days of receipt. Extra time for analysis is allowed in cases when the analytical work warrants. A notification to the submitter, stating that analytical results from a sample will be delayed and the reason for the delay will be made within fifteen (15) calendar days of receipt of the sample if extra time is required for analysis.

Asbestos Sample Analysis. SHL shall analyze samples for asbestos submitted by Department staff. Unless otherwise directed, the analysis will use the published polarized light microscopy method from 40 CFR Part 763 Appendix A to Subpart F. These samples will be collected during NESHAP compliance evaluation inspections of asbestos abatement contractor work. Samples collected for this activity will be coded as AQ-AB.

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

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**ITEM**

**21**

**DECISION**

**TOPIC**

Notice of Termination; Amendments to Chapters 60, 63, 64 and 65, Animal Feeding Operations and related NPDES Rule Chapters

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As required by the Iowa General Assembly earlier this year, the proposed amendments were intended to update the Department's rules regarding confinement feeding operations to conform with 2008 federal regulations pertaining to NPDES permits. In addition, the proposed amendments included revisions to open feedlot rules and related NPDES rules as necessary to conform to the 2008 federal regulations, and several "housekeeping" type corrections and updates.

Portions of the 2008 federal regulations were vacated by the U.S. Court of Appeals in March and the Department is not able to determine the status of the federal regulations in time to comply with the 180 day time limit for completion of rulemaking which expires on July 10, 2011. Therefore, it is requested that the Commission terminate this rulemaking project.

Wayne Gieselman  
Administrator  
Environmental Services Division

May 24, 2011

## ENVIRONMENTAL PROTECTION COMMISSION [567]

### Notice of Termination

Pursuant to the authority of Iowa Code sections 455B.173, 459.103 and 459A.104, the Environmental Protection Commission terminates the rule making initiated by its Notice of Intended Action published in the Iowa Administrative Bulletin on December 15, 2010, as **ARC 9274B**, proposing to amend Chapter 60, “Scope of Title-Definitions-Forms-Rules of Practice,” Chapter 63, “Monitoring, Analytical and Reporting Requirements,” Chapter 64, “Wastewater Construction and Operation Permits” and Chapter 65, “Animal Feeding Operations,” Iowa Administrative Code.

As required by the Iowa General Assembly pursuant to Iowa Code subsection 459.311(2), the Commission proposed amendments to update the Department’s rules regarding confinement feeding operations to conform to the 2008 federal regulations pertaining to National Pollutant Discharge Elimination System (NPDES) permits. The Iowa General Assembly required that in adopting these rules, the Department “shall be no more stringent than” the federal rules regarding NPDES requirements for concentrated animal feeding operations (CAFOs). In addition, the proposed amendments included revisions to open feedlot rules and other NPDES-related rules to conform to the 2008 federal regulations regarding NPDES requirements, and several “housekeeping” type corrections and updates.

On March 15, 2011, the U.S. Court of Appeals for the 5<sup>th</sup> Circuit vacated portions of the 2008 federal regulations. Specifically, the court vacated those provisions of the 2008 federal regulations that (1) required CAFOs that propose to discharge to apply for an NPDES permit and (2) created liability for failing to apply for an NPDES permit. The federal government is

still considering whether it will appeal this decision, The outcome of any such appeal, or future amendments to the 2008 federal regulations to conform to the 5<sup>th</sup> Circuit decision, will not occur by July 10, 2011, which is when the Commission's 180 day time limit for completion of rulemaking will expire. The Commission will commence rulemaking again when there is final resolution at the federal level of the currently vacated portions of the 2008 federal regulations. Only at that time can the Commission be assured that its rules are "no more stringent than" the federal CAFO regulations. Therefore, rule making for ARC **9274B** is terminated.

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Date

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Roger L. Lande,

Director

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

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**ITEM**

**22**

**DECISION**

**TOPIC**

**Amendment – ISU– Historic Aerial Photography Project**

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**Recommendation:**

The Department requests Commission approval of an amendment not-to-exceed \$75,000 with the ISU GIS Support and Research Facility. This amendment will provide aerial photography products including scanned images and photo centroids in support of the DNR's Historic Aerial Photography project.

**Funding Source:**

This project will be funded through Watershed Initiative (Infrastructure) and Brownfield (EPA) dollars.

**Background:**

The DNR's GIS Section is in the process of building a decadel series of historic photography from the 1930's through present. These photographs are proving to be extremely valuable in applications such as our Brownfields program where we need to know the history of a given property. Other applications include tracking the implementation of conservation practices on agricultural lands over time or evaluating when and how landscapes like the Prairie Pothole Region of the state have changed.

**Purpose:**

This amendment will allow the DNR to acquire county-based photo mosaics of historic aerial photography from the ISU GIS Support and Research Facility.

**Changes to original Scope of Work:**

ISU shall be responsible to deliver the following products as described:

Product 3: County-based Photo Mosaics, Description Orthorectified photos will be seamed together to form a complete, spatially accurate, county based image. Image shall be in SID format and projected in UTM NAD83, Zone 15N. Metadata will accompany all mosaics.

Products will be delivered within 6 months of written request for product by DNR.

Chris Ensminger, Environmental Program Supervisor  
GIS Section, Geologic and Water Survey Bureau  
Environmental Services Division

12/23/2010

Iowa Department of Natural Resources  
Environmental Protection Commission

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ITEM

23

DECISION

TOPIC

Denial of Petition for Rulemaking by Kids vs Global Warming

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The Department is recommending that the Commission deny a Petition for Rulemaking submitted to the Department on May 4, 2011, for the reasons outlined in this Agenda Item. A copy of the Petition for Rulemaking is attached to this Agenda Item, as Exhibit "A." A copy of the Petitioners' proposed rules has been separated from the remainder of the Petition and is attached as Exhibit "B."

**Background:**

In the May 4, 2011, Petition for Rulemaking Petitioners proposed the adoption of "rules relating to carbon dioxide emissions." The original Petitioner is Kids vs Global Warming, through Alec Loorz and Victoria Loorz of Oak View, California. Alec Loorz is a 16-year-old environmental activist and Victoria Loorz is his mother. Kids vs Global Warming is a non-profit organization established by Alec and Victoria Loorz. On June 1, 2011, the Department received a request from Our Children's Trust, an Oregon domestic nonprofit corporation, and Glori Dei and Maria Filippone, of Des Moines, Iowa, that Glori Dei Filippone, a minor child, be added as an additional Petitioner.

Every state and the District of Columbia have been included in similar legal action, with lawsuits being filed in at least eleven states and petitions for rulemaking being filed in all the others. A federal lawsuit also has been filed. The plaintiffs and petitioners include various minor children. It also appears that all the lawsuits and petitions for rulemaking request actions by the states similar to the actions requested in the Iowa Petition for Rulemaking.

In its Petition for Rulemaking filed in Iowa Petitioners propose that carbon dioxide emissions from fossil fuels should peak in 2012; that statewide fossil fuel carbon dioxide emissions should be reduced by at least six percent per year beginning in 2013; and that the Department should develop and implement methods of tracking and reporting progress toward these goals, including the development and implementation of an inventory of emissions from greenhouse gases.

**Procedural Requirements:**

According to the provisions of Iowa Code section 17A.7(1) and 561 Iowa Administrative Code chapter 5, the Department must deny the Petition or originate rulemaking proceedings within sixty days after submission of the Petition, unless a longer period of time is agreed to by the Petitioners. Since the Petition was filed on May 4, 2011, action

must be taken by the Department by July 4, 2011, in order for action to occur within sixty days of filing.

**Proposed Denial:**

DNR recommends that the Petition for Rulemaking be denied. The State of Iowa already has adopted regulations regarding greenhouse gases and DNR recommends refraining from proceeding with adoption of the Petitioners' proposed rules in anticipation of federal rulemaking regarding greenhouse gases.

Concerning the Petitioners' proposal for a rule requiring a "comprehensive inventory of emissions of greenhouse gases from all sectors of the state economy," the State of Iowa already has a greenhouse gas inventory requirement, pursuant to the provisions of Iowa Code section 455B.152. An inventory of Iowa's greenhouse gas emissions from 2009, as well as prior years, is available on the Department's website at <http://www.iowadnr.gov/air/prof/ghg/ghg.html>.

The State of Iowa also has rules requiring a phased process of including facilities emitting above defined thresholds of greenhouse gases in the already-existing Prevention of Significant Deterioration (PSD) and Title V air quality permitting programs. The first phase began on January 2, 2011, when facilities already subject to PSD and that also emit greenhouse gases above a certain threshold became subject to PSD permitting. The second phase will begin on July 1, 2011, when a facility will be subject to PSD permitting requirements if the facility is a new stationary source that will emit or has the potential to emit 100,000 tons per year (tpy) carbon dioxide equivalents (CO<sub>2</sub>e); or if the facility is an existing stationary source that emits or has the potential to emit 100,000 tpy CO<sub>2</sub>e and when such stationary source undertakes a physical change or a change in the method of operation that will result in an emissions increase of 75,000 tpy CO<sub>2</sub>e or more. A copy of the Administrative Rules Bulletin article containing the adopted and filed rules phasing in the inclusion of greenhouse gases in PSD and Title V air permitting is attached as Exhibit "C."

In anticipation of the federal greenhouse gas New Source Performance Standards for electric generating units and petroleum refineries becoming final federal rules, the Department should refrain from proceeding with a plan to adopt at this time the extensive and potentially conflicting greenhouse gas program proposed by Petitioners. The rules requested by the Petitioners would likely be inconsistent with and may be more stringent than the currently planned EPA greenhouse gas New Source Performance Standards for electric generating units and petroleum refineries. See Iowa Code section 455B.133(4). EPA has announced plans to establish a greenhouse gas New Source Performance Standard for new and modified oil, natural gas and coal electric generating units and to establish greenhouse gas emission guidelines for existing electric generating units, with proposed federal regulations issued by July 26, 2011 and final regulations adopted by May 26, 2012. EPA also has announced plans to establish a greenhouse gas New Source Performance Standard for new and modified refineries, and a greenhouse gas New Source Performance Standard for emission

guidelines for existing refineries, with proposed federal regulations issued by December 10, 2011 and final regulations adopted by November 10, 2012.

Finally, the Department's adoption of the Petitioners' proposed greenhouse gas program would necessitate the designation of resources and funding to this program. Without additional legislatively appropriated funding, the Department is unable to develop and administer the type of greenhouse gas program anticipated by the Petition for Rulemaking.

If the Commission approves this denial of the Petition for Rulemaking, the denial will be published in the Iowa Administrative Bulletin on July 13, 2011.

Jim McGraw  
Environmental Program Supervisor  
Program Development Section, Air Quality Bureau  
Memo Date: June 9, 2011

**IOWA DEPARTMENT OF NATURAL RESOURCES**

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<p>IN THE MATTER OF:</p> <p>Petition by Kids vs Global Warming, for the adoption of rules relating to carbon dioxide emissions</p>	<p>DENIAL OF PETITION FOR RULEMAKING</p>
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TO: Kids vs Global Warming  
Alec Loorz  
Victoria Loorz  
331 Prospect Street  
Oak View, California 93022

Glori Dei Filippone  
Maria Filippone  
1616 Casady Drive  
Des Moines, Iowa 50315

Our Children's Trust  
P.O. Box 5181  
Eugene, Oregon 97405

On May 4, 2011, Kids vs Global Warming, through Alec and Victoria Loorz of Oak View, California, filed with the Iowa Department of Natural Resources (Department) a Petition for Rulemaking proposing that the Department adopt rules relating to carbon dioxide emissions. On June 1, 2011, the Department received a request from Our Children's Trust, an Oregon domestic nonprofit corporation, and Glori Dei and Maria Filippone, of Des Moines, Iowa, that Glori Dei Filippone be added as an additional Petitioner. At the request of the Petitioners, the Department met with the Petitioners to discuss the Petition on June 9, 2011.

The Department hereby denies the Petition for Rulemaking. The State of Iowa has previously adopted regulations regarding greenhouse gases and at this time the Department will refrain from proceeding with adoption of the Petitioners' proposed rules in anticipation of federal rulemaking regarding greenhouse gases.

Concerning the Petitioners' proposal for a rule requiring a "comprehensive inventory of emissions of greenhouse gases from all sectors of the state economy," the State of Iowa already has a greenhouse gas inventory requirement, pursuant to the provisions of Iowa Code section 455B.152. An inventory of Iowa's greenhouse gas emissions from 2009, as well as prior years, is available on the Department's website at <http://www.iowadnr.gov/air/prof/ghg/ghg.html>.

The State of Iowa also has rules requiring a phased process of including facilities emitting above defined thresholds of greenhouse gases in the already-existing Prevention of Significant Deterioration (PSD) and Title V air quality permitting programs. The first phase began on January 2, 2011, when facilities already subject to PSD and that also emit greenhouse gases above a certain threshold became subject to PSD permitting. The second phase will begin on July 1, 2011, when a facility will be subject to PSD permitting requirements if the facility is a new stationary source that will emit or has the potential to emit 100,000 tons per year (tpy) carbon dioxide equivalents (CO<sub>2</sub>e); or if the facility is an existing stationary source that emits or has the potential to emit 100,000 tpy CO<sub>2</sub>e and when such stationary source undertakes a physical change or a change in the method of operation that will result in an emissions increase of 75,000 tpy CO<sub>2</sub>e or more.

In anticipation of the federal greenhouse gas New Source Performance Standards for electric generating units and petroleum refineries becoming final federal rules, the Department should refrain from proceeding with a plan to adopt at this time the extensive and potentially conflicting greenhouse gas program proposed by Petitioners. The rules requested by the Petitioners would likely be inconsistent with and may be more stringent than the currently planned EPA greenhouse gas New Source Performance Standards for electric generating units and petroleum refineries. See Iowa Code section 455B.133(4). EPA has announced plans to establish a greenhouse gas New Source Performance Standard for new and modified oil, natural gas and coal electric generating units and to establish greenhouse gas emission guidelines for existing electric generating units, with proposed federal regulations issued by July 26, 2011 and final regulations adopted by May 26, 2012. EPA also has announced plans to establish a greenhouse gas New Source Performance Standard for new and modified refineries, and a greenhouse gas New Source Performance Standard for emission guidelines for existing refineries, with proposed federal regulations issued by December 10, 2011 and final regulations adopted by November 10, 2012.

Finally, the Department's adoption of the Petitioners' proposed greenhouse gas program would necessitate the designation of resources and funding to this program. Without additional legislatively appropriated funding, the Department is unable to develop and administer the type of greenhouse gas program anticipated by the Petition for Rulemaking.

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ROGER L. LANDE, DIRECTOR  
Iowa Department of Natural Resources

Dated this \_\_\_\_\_ day of  
\_\_\_\_\_, 2011.

IOWA DEPARTMENT OF NATURAL RESOURCES

Petition by Kids vs Global Warming

for the adoption

of rules relating to carbon dioxide emissions

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) PETITION FOR  
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PETITION  
of  
KIDS VS GLOBAL WARMING

to the

IOWA DEPARTMENT OF NATURAL RESOURCES  
&  
THE AIR QUALITY BUREAU

For the adoption of a rule to strictly limit  
and regulate fossil fuel carbon dioxide emissions,  
and to establish an effective emissions reduction  
strategy that will achieve an atmospheric concentration  
no greater than 350 ppm of carbon dioxide by 2100.

Alec Loorz and Victoria Loorz  
Kids vs Global Warming\*  
331 Prospect St  
Oak View, CA 93022  
(805) 200-8747

May 4, 2011

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\* Please direct all correspondences to Alec Loorz and Victoria Loorz at Kids vs Global Warming

May 4, 2011

Compliance and Enforcement Bureau  
Environmental Protection Division  
Department of Natural Resources  
502 E. 9<sup>th</sup> Street  
Des Moines, Iowa 50319-0034

Catharine Fitzsimmons, Chief  
Air Quality Bureau  
Department of Natural Resources  
7900 Hickman Road, Suite 1  
Windsor Heights, Iowa 50324

**Re: Petition For Adoption of a Rule to Regulate Fossil Fuel Carbon Dioxide Emissions and to Establish an Effective Emissions Reduction Strategy That Will Achieve a Concentration of 350 ppm Atmospheric Carbon Dioxide by 2100.**

#### **REQUEST FOR ADOPTION OF A RULE**

Pursuant to the Iowa Code Annotated, “[a]n interested person may petition an agency requesting the adoption, . . . of a rule.”<sup>1</sup> The petitioner Kids vs Global Warming hereby submits this petition for rulemaking on behalf of its members, the citizens of Iowa, and present and future generations of minor children. The petitioner respectfully requests that the Department of Natural Resources and the Air Quality Bureau (hereinafter, collectively referred to as, the Department) promulgate a rule that requires the Department to take the following steps in order to protect the integrity of Earth’s climate by adequately protecting our atmosphere, a public trust resource upon which all those in Iowa rely upon for their health, safety, sustenance, and security:

- (1) Ensure that carbon dioxide emissions from fossil fuels peak in the year 2012;
- (2) Adopt a carbon dioxide emissions reduction plan that, consistent with the best available science as described in the attached report, reduces state-wide fossil fuel carbon dioxide emissions by at least 6% annually until at least 2050, and expands Iowa’s capacity for carbon sequestration;
- (3) Establishes a state-wide greenhouse gas emissions accounting, verification and inventory and issues annual progress reports so that the public has access to accurate data regarding the effectiveness of Iowa’s efforts to reduce fossil fuel carbon dioxide emissions; and

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<sup>1</sup> IOWA CODE ANN. § 17A.7 (West 2011).

This petition conforms to all relevant statutory and administrative code requirements, which can be found at App. I.

- (4) Adopt any necessary policies or regulations to implement the greenhouse gas emissions reduction plan, as detailed in sections (1) and (2) above.

Petitioner Kids vs Global Warming is a non-profit organization committed to creating opportunities for youth to learn about the science and solutions of climate change, and then to take action that will reduce dependence on fossil fuels and influence the Ruling Generation to make good decisions now that impact the future of youth and generations to come. Kids vs Global Warming is a membership organization of youth from all over the country who are concerned about how climate change is affecting and will continue to affect them and their future. Kids vs Global Warming files this petition on behalf of its members. The State's failure to limit carbon dioxide emissions and ensure that they decline each year as we transition off of fossil fuels is injuring Kids vs Global Warming's members in ways that are germane to the organization's mission. Namely, the State is causing harm to and failing to protect the atmosphere on which KvsGW's members rely for their health, well-being and survival.

The petitioner's members are youth, who represent the youngest living generation of public trust beneficiaries, and have a profound interest in ensuring that the climate remains stable enough to ensure their right to a livable future. A livable future includes the opportunity to drink clean water and abate thirst, to grow food that will abate hunger, to be free from imminent property damage caused by extreme weather events, and to enjoy the abundant and rich biodiversity on this small planet. The petitioner requests the promulgation of the rule herein proposed in order to protect the youth's interest in a livable future, and an inhabitable Iowa.

**I. STATEMENT OF REASONS:** The Department should grant this petition and promulgate the proposed rule for the following reasons:

**A. THE SCIENCE UNEQUIVOCALLY SHOWS THAT ANTHROPOGENIC CLIMATE CHANGE IS OCCURRING AND IS THREATENING THE STABILITY OF THE GLOBAL CLIMATE.**

1. According to the United States Global Change Research Program<sup>2</sup>, global warming is occurring and adversely impacting the Earth's climate.<sup>3</sup> The present rate of

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<sup>1</sup> See App. II for specific language of the proposed rule.

<sup>2</sup> "The U.S. Global Change Research Program (USGCRP) coordinates and integrates federal research on changes in the environment and their implications for society." The organization's vision is to produce "[a] nation, globally engaged and guided by science, meeting the challenges of climate and global change." The organization is comprised of "[t]hirteen departments and agencies [that] participate in the USGCRP...steered by the Subcommittee on Global Change Research under the Committee on Environment and Natural Resources, overseen by the Executive Office of the President, and facilitated by an Integration and Coordination Office." <http://www.globalchange.gov/about>.

<sup>3</sup> UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM (USGCRP), GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 13 (2009) available at

global heating is occurring as a result of human activities that release heat-trapping greenhouse gases (GHGs) and intensify the Earth's natural greenhouse effect, at an accelerated rate, thereby changing Earth's climate.<sup>4</sup> This abnormal climate change is unequivocally human-induced<sup>5</sup>, is occurring now, and will continue to occur unless drastic measures are taken to curtail it<sup>6</sup>. Climate change is damaging both natural and human systems, and if unrestrained, will alter the planet's habitability.<sup>7</sup>

2. According to the United States Environmental Protection Agency (EPA), "[T]he case for finding that *greenhouse gases in the atmosphere endanger public health and welfare is compelling and, indeed, overwhelming.*"<sup>8</sup> The EPA further stated in April 2009 that "[t]he evidence points ineluctably to the conclusion that *climate change is upon us as a result of greenhouse gas emissions, that climate changes are already occurring that harm our health and welfare, and that the effects will only worsen over time in the absence of regulatory action.*"<sup>9</sup>
3. We human beings have benefitted from living on a planet that has been remarkably hospitable to our existence and provided conditions that are just right for human life to expand and flourish.<sup>10</sup> The Earth is a "Goldilocks" planet with an

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<http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [hereinafter *Global Climate Change Impacts*] ("Human activities have led to large increases in heat-trapping gases over the past century. Global average temperature and sea level have increased, and precipitation patterns have changed.").

<sup>4</sup> *Id.* ("The global warming of the past 50 years is due primarily to human-induced increases in heat-trapping gases."); DEUTSCHE BANK GROUP CLIMATE CHANGE ADVISORS, CLIMATE CHANGE: ADDRESSING THE MAJOR SKEPTIC ARGUMENTS 9 (September 2010) available at [http://www.dbcca.com/dbcca/EN/\\_media/DBCCAColumbiaSkepticPaper090710.pdf](http://www.dbcca.com/dbcca/EN/_media/DBCCAColumbiaSkepticPaper090710.pdf); Intergovernmental Panel on Climate Change (IPCC), *IPCC Fourth Assessment Report: Climate Change 2007 (AR4)*, 1.1 (2007) available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/mains1.html#1-1](http://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html#1-1).

<sup>5</sup> USGCRP, *Global Climate Change Impacts* at 12 (2009).

<sup>6</sup> *Id.* ("Future climate change and its impacts depend on choices made today."); IPCC, *AR4 1.1* (2007) ("Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.").

<sup>7</sup> USGCRP, *Global Climate Change Impacts* at 12 (2009) ("Thresholds will be crossed, leading to large changes in climate and ecosystems.").

<sup>8</sup> Proposed Endangerment Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 18886, 18904 (April 24, 2009)(to be codified in 40 C.F.R. Chapter 1) (emphasis added).

<sup>9</sup> *Id.*

<sup>10</sup> John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007) ("The earth's climate system can be thought of as an elaborate balancing act of energy, water,

atmosphere that has fewer GHGs than that of Venus (which is too hot), and more than that of Mars (which is too cold), which is just perfect for the life that has developed on planet Earth.<sup>11</sup>

4. GHGs in the atmosphere act like a blanket over the Earth to trap the heat that it receives from the sun.<sup>12</sup> More GHGs in the atmosphere means that more heat is being retained on Earth, with less heat radiating back out into space.<sup>13</sup> Without this greenhouse effect, the average surface temperature of our planet would be 0°F (-18°C) instead of 59°F (15°C).<sup>14</sup> Scientists have understood this basic mechanism of global warming since the late-nineteenth century.<sup>15</sup>
5. Human beings have significantly altered the chemical composition of the Earth's atmosphere and its climate system.<sup>16</sup> We have changed the atmosphere and Earth's climate system by engaging in activities that produce, or release GHGs in to the atmosphere.<sup>17</sup> Carbon dioxide (CO<sub>2</sub>) is the key GHG, and there is evidence that its emissions are largely responsible for the current warming trend.<sup>18</sup> Although much of the excess carbon dioxide is absorbed by the oceans, plants and forests, the increase of GHG concentrations resulting from historic and present human activities has altered the Earth's ability to maintain the delicate balance of energy between that which it receives from the sun and that which it radiates back out into space.<sup>19</sup>

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and chemistry involving the atmosphere, oceans, ice masses, biosphere, and land surface.”).

<sup>11</sup> JAMES HANSEN, STORMS OF MY GRANDCHILDREN 224-225 (2009); See John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN at 23.

<sup>12</sup> John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN at 22.

<sup>13</sup> *Id.* at 16-17.

<sup>14</sup> *Id.* at 17.

<sup>15</sup> See *id.* at 35 (describing the efforts of Swedish chemist Svante Arrhenius).

<sup>16</sup> Naomi Oreskes, *The Scientific Consensus on Climate Change*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 65, 93 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007) (“We have changed the chemistry of our atmosphere, causing sea level to rise, ice to melt, and climate to change. There is no reason to think otherwise.”).

<sup>17</sup> *Id.*

<sup>18</sup> See James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 217-231 (2008).

<sup>19</sup> John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007).

6. The current CO<sub>2</sub> concentration in our atmosphere is about 390 ppm<sup>20</sup> (compared to the pre-industrial concentration of 280 ppm).<sup>21</sup> Current atmospheric GHG concentrations are likely the highest they have been in the last 800,000 years.<sup>22</sup>
7. Concentrations of other GHGs in the atmosphere have also increased from human activities. Atmospheric concentrations of methane, for example, have increased nearly 150% since the pre-industrial period.<sup>23</sup> Concentrations of nitrous oxide have also increased.<sup>24</sup>
8. Humans not only continue to add GHGs into the atmosphere at a rate that outpaces their removal through natural processes,<sup>25</sup> but the current and projected CO<sub>2</sub> increase, for example, is about one hundred times faster than has occurred over the past 800,000 years.<sup>26</sup> This increase has to be considered in light of the lifetime of

<sup>20</sup> NOAA, Atmospheric CO<sub>2</sub>: Monthly & Annual Mean CO<sub>2</sub> Concentrations (ppm), March 1958 – Present, available at <http://co2now.org/Current-CO2/CO2-Now/Current-Data-for-Atmospheric-CO2.html> (showing an atmospheric CO<sub>2</sub> concentration of 392.40 for March, 2011).

<sup>21</sup> IPCC, *AR4* at 37 (“The global atmospheric concentration of CO<sub>2</sub> increased from a pre-industrial value of about 280ppm to 379ppm in 2005.”); National Science and Technology Council, *Scientific Assessment of the Effects of Global Change on the United States 2* (May 2008) [hereinafter *Scientific Assessment*], available at <http://www.climate-science.gov/Library/scientific-assessment/Scientific-AssessmentFINAL.pdf> (“The globally averaged concentration of carbon dioxide in the atmosphere has increased from about 280 parts per million (ppm) in the 18<sup>th</sup> century to 383 ppm in 2007.”); Environmental Protection Agency (EPA), *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 17* (December 9 2009) [hereinafter *TS Endangerment Findings*].

<sup>22</sup> Dieter Lüthi et al., *High-resolution carbon dioxide concentration record 650,000-800,000 years before present* 453 *Nature* 379, 379-382 (May 2008) available at <http://www.nature.com/nature/journal/v453/n7193/full/nature06949.html> (prior to this publication it was accepted atmospheric CO<sub>2</sub> record extended back 650,000 years, but now research indicates that the record can be extended 800,000 years, or two complete glacial cycles).

<sup>23</sup> EPA, *TS Endangerment Findings* at 18 (“The global atmospheric concentration of methane has increased from a pre-industrial value of about 715 parts per billion (ppb) to 1732 ppb in the early 1990s, and was 1782 ppb in 2007- a 149% increase from pre-industrial levels.”).

<sup>24</sup> *Id.* at 19.

<sup>25</sup> *Id.* at ES-2 (“Atmospheric GHG concentrations have been increasing because anthropogenic emissions have been outpacing the rate at which GHGs are removed from the atmosphere by natural processes over timescales of decades to centuries.”).

<sup>26</sup> Dieter Lüthi et al., *High-resolution carbon dioxide concentration record 650,000-800,000 years before present* 453 *Nature* 379, 379-382 (May 2008) available at <http://www.nature.com/nature/journal/v453/n7193/full/nature06949.html>.

greenhouse gases in the atmosphere. In particular, a substantial portion of every ton of CO<sub>2</sub> emitted by humans persists in the atmosphere for as long as a millennium or more.<sup>27</sup> The current concentrations of GHGs in the atmosphere, therefore, are the result of both historic and current emissions.

9. One key observable change is the rapid increase in recorded global surface temperatures.<sup>28</sup> As a result of increased atmospheric GHGs from human activities, based on fundamental scientific principles, the Earth has been warming as scientists have predicted.<sup>29</sup> The increased concentrations of greenhouse gases in our atmosphere, primarily CO<sub>2</sub>,<sup>30</sup> have raised global surface temperature by 1.4°F (0.8°C) in the last one hundred to one hundred fifty years.<sup>31</sup> In the last thirty years, the acceleration of change has intensified as the Earth has been warming at a rate three times faster than that over the previous one hundred years.<sup>32</sup>

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<sup>27</sup> James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 220 (2008); See also EPA, *TS Endangerment Findings* at 16 (“Carbon cycle models indicate that for a pulse of CO<sub>2</sub> emissions, given an equilibrium background, 50% of the atmospheric increase will disappear within 30 years, 30% within a few centuries, and the last 20% may remain in the atmosphere for thousands of years.”); John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 11, 29 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007) (“Since CO<sub>2</sub> has a lifetime of over one hundred years, these emissions have been collecting for many years in the atmosphere.”).

<sup>28</sup> National Science and Technology Council, *Scientific Assessment* at 51; IPCC, *AR4* at 30; USGCRP, *Global Climate Change Impacts* at 19; EPA, *TS Endangerment Findings* 26-30; National Aeronautics and Space Administration (NASA) & Goddard Institute for Space Studies (GISS), *Global Surface Temperature*, <http://climate.nasa.gov/keyIndicators/#globalTemp> (illustrating the change in global surface temperatures) (last visited April 7, 2011).

<sup>29</sup> IPCC, *AR4* at 39; USGCRP, *Global Climate Change Impacts* at 13; EPA, *TS Endangerment Findings* at 48.

<sup>30</sup> EPA, *Climate Change – Science*, available at <http://epa.gov/climatechange/science/index.html> (August 19, 2010) (last visited April 7, 2011); EPA, *TS Endangerment Findings* at ES-1-2.

<sup>31</sup> EPA, *TS Endangerment Findings* at ES-2 (“Global mean surface temperatures have risen by 1.3 ± 0.32°F (0.74°C ± 0.18°C) over the last 100 years.”); See J. Hansen et al., NASA & GISS, *Global Surface Temperature Change* (August 3, 2010); NASA, *Climate Change: Key Indicators*, <http://climate.nasa.gov/keyIndicators> (last visited April 7, 2011); John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007).

<sup>32</sup> EPA, *TS Endangerment Findings* at 32 (“U.S. average annual temperatures (for the contiguous United States or lower 48 states) are now approximately 1.25°F (0.69°C) warmer than at the start of the 20th century, with an increased rate of warming over the

10. Because of year-to-year variations in these thermometer readings, as with daily readings, scientists compare temperature differences over a decade to determine patterns.<sup>33</sup> Employing this decadal scale, the surface of the planet has warmed at a rate of roughly 0.3 to 0.4°F (0.15 to 0.2°C) per decade since the late 1970s.<sup>34</sup> Global mean surface temperature has been decidedly higher during the last few decades of the twentieth century than at any time during the preceding four centuries.<sup>35</sup> Global surface temperatures have been rising dramatically since 1951, and 2010 tied for the hottest year on record.<sup>36</sup>
11. The dramatic increase of the average global surface temperature is alarming. By comparison, the global surface temperature during the last Ice Age was about 9°F (5°C) cooler than today.<sup>37</sup> It has become quite clear that the past several decades present an anomaly, as global surface temperatures are registering higher than at any point in the past 400 years (and for the Northern Hemisphere the past 1,000 years).<sup>38</sup>
12. The IPCC has observed that “[w]arming of the climate system is unequivocal.”<sup>39</sup> The United States EPA has recognized the scientific consensus that has developed on the fact of global warming and its cause; that the Earth is heating up due to

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past 30 years. The rate of warming for the entire period of record (1901–2008) is 0.13°F (0.072°C) per decade while the rate of warming increased to 0.58°F (0.32°C) per decade for the period 1979–2008.”); USGCRP, *Global Climate Change Impacts* at 9.

<sup>33</sup> IPCC, *AR4* at 40.

<sup>34</sup> See NASA, *Climate Change: Key Indicators, Global Land-Ocean Temperature Index*, <http://climate.nasa.gov/keyIndicators/#globalTemp> (last visited April 7, 2011).

<sup>35</sup> The National Academies Press (Board on Atmospheric Sciences and Climate), *Surface Temperature Reconstructions for the Last 2,000 Years* 3 (2006), available at [http://www.nap.edu/catalog.php?record\\_id=11676](http://www.nap.edu/catalog.php?record_id=11676).

<sup>36</sup> NASA, *Global Climate Change – Global Surface Temperature*, <http://climate.nasa.gov/keyIndicators/index.cfm#globalTemp> (last visited April 10, 2011) (“Global surface temperatures in 2010 tied 2005 as the warmest on record.”); NASA, *Global Climate Change*, <http://climate.nasa.gov/> (last visited April 10, 2011) (“January 2000 to December 2009 was the warmest decade on record.”).

<sup>37</sup> James E. Hansen & Makiko Sato, *Paleoclimate Implications for Human-Made Climate Change* 5 (January 18, 2011), available at [http://www.columbia.edu/~jeh1/mailings/2011/20110118\\_MilankovicPaper.pdf](http://www.columbia.edu/~jeh1/mailings/2011/20110118_MilankovicPaper.pdf) (last visited April 10, 2011).

<sup>38</sup> USGCRP, *Global Climate Change Impacts* at 19.

<sup>39</sup> IPCC, *Summary for Policymakers*, in *CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE*, at 1, 3, 22, 31 (S. Solomon et al. eds. 2007).

human activities.<sup>40</sup>

13. Changes in many different aspects of Earth's climate system over the past century are consistent with this warming trend: based on straightforward scientific principles, human-induced GHG increases lead not only to warming of land surfaces<sup>41</sup>, but also to the warming of oceans<sup>42</sup>, increased atmospheric moisture levels<sup>43</sup>, rises in the global sea level<sup>44</sup>, and changes in rainfall<sup>45</sup> and atmospheric air circulation patterns that affect water and heat distribution.<sup>46</sup>
14. As expected (and consistent with the temperature increases in land surfaces), ocean temperatures have also increased.<sup>47</sup> This has led to changes in the ocean's ability to circulate heat around the globe; which can have catastrophic implications for the global climate system.<sup>48</sup> The average temperature of the global ocean has increased significantly despite its amazing ability to absorb enormous amounts of heat before exhibiting any signs.<sup>49</sup> In addition, the most significant indicator of the planet's energy imbalance due to human-induced GHG increases, is the long-term increase in global average ocean heat content over the last 50 years, extending down to several thousand meters below the ocean surface.<sup>50</sup>
15. As predicted, precipitation patterns have changed due to increases in atmospheric moisture levels and changes in atmospheric air circulation patterns; just another indicator that the Earth is warming.<sup>51</sup> As the Earth warms, moisture levels are expected to increase when temperature increases because warmer air generally

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<sup>40</sup> EPA, *TS Endangerment Findings* at ES-2 (“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. ... Most of the observed increase in global average temperatures since the mid-20<sup>th</sup> century is very likely due to the observed increase in *anthropogenic* GHG concentrations.”) (emphasis added).

<sup>41</sup> IPCC, *AR4* at 30.

<sup>42</sup> *Id.* at 72.

<sup>43</sup> USGCRP, *Global Climate Change Impacts* at 18; B.D. Santer et al., *Identification of human-induced changes in atmospheric moisture content*, 104 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, 15248, 15248-15253 (September 25, 2007).

<sup>44</sup> IPCC, *AR4* at 30.

<sup>45</sup> USGCRP, *Global Climate Change Impacts* at 18, 44.

<sup>46</sup> *Id.* at 42.

<sup>47</sup> IPCC, *AR4* at 30; EPA, *TS Endangerment Findings* at ES-2.

<sup>48</sup> USGCRP, *Global Climate Change Impacts* at 26.

<sup>49</sup> UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP), CLIMATE CHANGE SCIENCE COMPENDIUM 2009 at 26 (UNEP/Earthprint, 2009).

<sup>50</sup> S. Levitus et al., *Global ocean heat content 1955-2008 in light of recently revealed instrumentation problems* 36 J. GEOPHYSICAL RES. LETTERS L07608 (April 2009).

<sup>51</sup> USGCRP, *Global Climate Change Impacts* at 13, 17, 21, 36, 42, 74.

holds more moisture.<sup>52</sup> In more arid regions, however, higher temperatures lead to greater evaporation.<sup>53</sup>

16. These changes in the Earth's water cycle increase the potential for, and severity of, severe storms, flooding and droughts.<sup>54</sup> Storm-prone areas are already experiencing a greater chance of severe storms, and this will continue.<sup>55</sup> Even in arid regions, increased precipitation is likely to cause flash flooding, and will be followed by drought.<sup>56</sup>
17. These changes are already occurring: Droughts in parts of the midwestern, southeastern, and southwestern United States have increased in frequency and severity within the last fifty years, coincident with rising temperatures.<sup>57</sup> In 2009, more than half of the United States received above normal precipitation; yet the southwestern United States (Arizona in particular) had one of its driest periods.<sup>58</sup>
18. Based on the laws of physics and the past climate record, scientists have concluded that precipitation events will increase globally, particularly in tropical and high latitude regions, while decreasing in subtropical and mid-latitude regions,<sup>59</sup> with longer periods between normal heavy rainfalls.<sup>60</sup>
19. Other changes consistent with climate modeling resulting from global warming have been observed not just in the amount, intensity, and frequency of precipitation but also in the type of precipitation.<sup>61</sup> In higher altitude and latitude regions, including in mountainous areas, more precipitation is falling as rain rather than snow.<sup>62</sup> With early snow melt occurring because of climate change, the reduction in snowpack can aggravate water supply problems.<sup>63</sup> In Northern Europe and the northeastern United States, a change in air currents -- caused by the warming Arctic -- brought severe snowstorms during the winters of 2009-2010 and 2010-2011.<sup>64</sup>

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<sup>52</sup> EPA, *TS Endangerment Findings* at 111.

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at 120-121; USGCRP, *Global Climate Change Impacts* at 27.

<sup>56</sup> EPA, *TS Endangerment Findings* at 115.

<sup>57</sup> *Id.* at 145, 143, 148.

<sup>58</sup> *State of the Climate, 2009* at S138.

<sup>59</sup> EPA, *TS Endangerment Findings* at ES-4, 74.

<sup>60</sup> EPA, *TS Endangerment Findings* at 74.

<sup>61</sup> *Id.* at ES-2.

<sup>62</sup> USGCRP, *Global Climate Change Impacts* at 18, 45.

<sup>63</sup> *Id.* at 33

<sup>64</sup> NOAA, *Arctic Report Card: Update for 2010*, (December 10, 2010) (last visited April 7, 2011) <http://www.arctic.noaa.gov/reportcard/atmosphere.html>; NOAA, *The Future of Arctic Sea Ice and Global Impacts*,

20. As expected global sea levels have also risen.<sup>65</sup> Sea levels have been rising at an average rate of 3.1 millimeters per year based on measurements from 1993 to 2003.<sup>66</sup> Though sea levels rose about 6.7 inches over the last century; within the last decade, that rate has nearly *doubled*.<sup>67</sup> Rising seas, brought about by melting of polar icecaps and glaciers, as well as by thermal expansion of the warming oceans, will cause flooding in coastal and low-lying areas.<sup>68</sup> The combination of rising sea levels and more severe storms creates conditions conducive to severe storm surges during high tides.<sup>69</sup> In coastal communities this can overwhelm coastal defenses (such as levees and sea walls), as witnessed during Hurricane Katrina.<sup>70</sup>
21. Sea level is not uniform across the globe, because it depends on variables such as ocean temperature and currents.<sup>71</sup> Unsurprisingly, the most vulnerable lands are low-lying islands, river deltas, and areas that already lie below sea level because of land subsidence.<sup>72</sup> Based on these factors, scientists have concluded that the threats to the United States from rising seas are the most severe on the Gulf and Atlantic Coasts.<sup>73</sup> Worldwide, hundreds of millions of people live in river deltas and vulnerable coastlines along the southern and western coasts of Asia where rivers draining the Himalayas flow into the Indian and Pacific Oceans.<sup>74</sup>
22. In a comprehensive review of studies on sea level rise in the 21<sup>st</sup> century published by the British Royal Society, researchers estimated the probable sea level rise for

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[http://www.arctic.noaa.gov/future/index\\_impacts.html#event](http://www.arctic.noaa.gov/future/index_impacts.html#event); See also Climate Science Watch, *Climatologist Ben Santer on the attribution of extreme weather events to climate change*, (December 29, 2010) (last visited April 9, 2011) <http://climateprogress.org/2010/12/29/ben-santer-attribution-extreme-weather-events-to-climate-change/#more>.

<sup>65</sup> USGCRP, *Global Climate Change Impacts*, at 9; EPA, *TS Endangerment Findings at ES-3*; IPCC, *AR4* at 30.

<sup>66</sup> IPCC, *AR4* at 30.

<sup>67</sup> NASA, *Climate Change: How Do We Know?, Sea Level Rise* (last visited April 9, 2011) <http://climate.nasa.gov/evidence/#no4> (citing J.A. Church & N.J. White, *A 20<sup>th</sup> Century Acceleration in Global Sea Level Rise* (2006) 33 *Geophysical Research Letters*, L01602, doi: 10.1029/2005GL024826).

<sup>68</sup> EPA, *TS Endangerment Findings at ES-7*; USGCRP, *Global Climate Change Impacts at 62-63*.

<sup>69</sup> USGCRP, *Global Climate Change Impacts at 109*; EPA, *TS Endangerment Findings at 75*.

<sup>70</sup> EPA, *TS Endangerment Findings at 86, 118*.

<sup>71</sup> USGCRP, *Global Climate Change Impacts at 25-26, 37*.

<sup>72</sup> EPA, *TS Endangerment Findings at 121*.

<sup>73</sup> *Id.* at 128; USGCRP, *Global Climate Change Impacts at 57*.

<sup>74</sup> EPA, *TS Endangerment Findings at 159*; IPCC, *AR4 at 52*.

this century between .5 and 2 meters (1 ½ to 6 ½ feet), continuing to rise for several centuries after that, depending on future CO<sub>2</sub> levels and the behavior of polar ice sheets.<sup>75</sup>

23. The IPCC estimates a 0.6-meter rise in sea level by 2100 under a worst-case scenario that does not include contributions from the accelerated flow of major ice sheets.<sup>76</sup> Some scientists predict a 2-meter rise in sea level by 2100 if present trends continue.<sup>77</sup> “Today, rising sea levels are submerging low-lying lands, eroding beaches, converting wetlands to open water, exacerbating coastal flooding, and increasing the salinity of estuaries and freshwater aquifers.”<sup>78</sup> The impacts of rising sea levels can be seen in many coastal locations across the nation; along the Florida coast for instance, sea level is rising about 1 inch every 11-14 years.<sup>79</sup> This seemingly small rise in ocean levels is contributing to massive erosion, causing many homeowners to remove beachfront property, and has led to a decline in the recreational value of beaches.<sup>80</sup> Other coastal states (such as Maryland and Louisiana) are also experiencing wetland loss due to rising sea levels.<sup>81</sup> Scientists have predicted that wetlands in the Mid-Atlantic region of the United States cannot withstand a 7-millimeter per year rise in sea levels.<sup>82</sup>

24. As expected, mountain glaciers, which are the source of freshwater for hundreds of millions of people, are receding worldwide because of warming temperatures.<sup>83</sup> Today, Glacier National Park in Montana has twenty-five glaciers larger than twenty-five acres, down from one hundred and fifty in 1850.<sup>84</sup> The year 2009

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<sup>75</sup> R.J. Nicholls et al., *Sea-level rise and its possible impacts given a ‘beyond 4°C world’ in the twenty-first century*, PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY 161-181, 168 (2011).

<sup>76</sup> IPCC, *AR4* at 45.

<sup>77</sup> M. Vermeer & S. Rahmstorf, *Global Sea Level Linked to Global Temperature*, 106 PROC. NATL. ACAD. SCI. 21527, 21531 (2009).

<sup>78</sup> USCCSP, *Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region* [hereinafter *Coastal Sensitivity to Sea-Level Rise*] 2 (Jan. 2009), available at [http://www.epa.gov/climatechange/effects/coastal/pdfs/ccsp\\_front.pdf](http://www.epa.gov/climatechange/effects/coastal/pdfs/ccsp_front.pdf).

<sup>79</sup> EPA, *Saving Florida’s Vanishing Shores* (March 2002) available at [http://www.epa.gov/climatechange/effects/coastal/saving\\_FL.pdf](http://www.epa.gov/climatechange/effects/coastal/saving_FL.pdf).

<sup>80</sup> *Id.*

<sup>81</sup> USCCSP, *Coastal Sensitivity to Sea-Level Rise* at 3-4.

<sup>82</sup> *Id.* at 4.

<sup>83</sup> See *TS Endangerment Findings* at 111 (“Glaciers throughout North America are melting, and the particularly rapid retreat of Alaskan glaciers represents about half of the estimated loss of glacial mass worldwide.”).

<sup>84</sup> United States Geological Survey (Northern Rocky Mountain Science Center), *Retreat of Glaciers in Glacier National Park* (June 2010), [http://www.nrmssc.usgs.gov/research/glacier\\_retreat.htm](http://www.nrmssc.usgs.gov/research/glacier_retreat.htm).

marked the 19th consecutive year in which glaciers lost mass.<sup>85</sup> Mountain glaciers are in retreat all over the world, including Mt. Kilimanjaro in Africa, the Himalayas, the Alps (99% in retreat), the glaciers of Peru and Chile (92% in retreat), and in the United States.<sup>86</sup> In the Brooks Range of northern Alaska, all of the glaciers are in retreat and in southeastern Alaska 98% are in retreat.<sup>87</sup>

25. Although a minor contribution to sea level rise, the melting of mountain glaciers is particularly serious in areas that rely on snow melt for irrigation and drinking water supply.<sup>88</sup> In effect, a large snow pack or glacier acts as a supplemental reservoir or water tower, holding a great deal of water in the form of ice and snow through the winter and spring and releasing it in the summer when rainfall is lower or absent.<sup>89</sup> The water systems of the western United States (particularly in California) and the Andean nations of Peru and Chile, among other places, all heavily rely on these natural forms of water storage.<sup>90</sup> In addition to providing a more reliable water supply, the storing of precipitation as ice and snow helps moderate potential flooding.<sup>91</sup>
26. Yet as temperatures warm, not only will these areas lose this supplemental form of water storage, but also severe flooding is likely to increase (because when rain falls on snow, it accelerates the melting of glaciers and snow packs).<sup>92</sup> Ice is melting most dramatically at the poles.<sup>93</sup> Sea ice in the Arctic oceans is expected to decrease and may even disappear entirely in coming decades.<sup>94</sup>

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<sup>85</sup> National Oceanic and Atmospheric (NOAA), *State of the Climate in 2009*, 91 BULL. AMER. METEOR. SOC. at S13 (2010).

<sup>86</sup> L. Thompson, *Climate Change: The Evidence and Our Options*, 33 THE BEHAVIOR ANALYST No. 2 (Fall) 153, 155-160 (2010); USGRCP, *Global Climate Change Impacts* at 18.

<sup>87</sup> L. Thompson, *Climate Change: The Evidence and Our Options*, 33 THE BEHAVIOR ANALYST No. 2 (Fall) 153, 158 (2010).

<sup>88</sup> IPCC, *AR4* at 49.

<sup>89</sup> See L. Thompson, *Climate Change: The Evidence and Our Options*, 33 THE BEHAVIOR ANALYST No. 2 (Fall) 153, 164 (2010).

<sup>90</sup> See *Id.* at 155 – 160, 164.

<sup>91</sup> EPA, *TS Endangerment Findings* at 111; USGRCP, *Global Climate Change Impacts* at 64.

<sup>92</sup> EPA, *TS Endangerment Findings* at 111.

<sup>93</sup> L. Thompson, *Climate Change: The Evidence and Our Options*, 33 THE BEHAVIOR ANALYST No. 2 (Fall) 153, 160 (2010) (“[P]olar ice sheets are slower to respond to temperature rise than the smaller mountain glaciers, but they too, are melting. . . . The loss of ice in the Arctic and Antarctic regions is especially troubling because these are the locations of the largest ice sheets in the world.”).

<sup>94</sup> EPA, *TS Endangerment Findings* at 120; USGRCP, *Global Climate Change Impacts* at 20-21 (“Studies published after the appearance of the IPCC Fourth Assessment Report in 2007 have also found human fingerprints in the increased levels of atmospheric moisture (both close to the surface and over the full extent of the atmosphere), in the decline of

27. Beginning in late 2000, the Jakobshavn Isbrae Glacier (which has a major influence over the mass of the Greenland ice sheet), lost significant amounts of ice.<sup>95</sup> In August of 2010, an enormous iceberg (roughly ninety-seven square miles in size) broke off from Greenland.<sup>96</sup> Nine Antarctic ice shelves have also collapsed into icebergs in the last fifty years, (six of them since 1996).<sup>97</sup> An ice shelf roughly the size of Rhode Island collapsed in 2002, and an ice bridge collapsed in 2009, leaving an ice shelf the size of Jamaica on the verge of shearing off.<sup>98</sup> The 2002 collapse of the Larsen Ice Shelf, which had existed for at least 11,000 years, was “unprecedented in respect to both area and time.”<sup>99</sup> The “sudden and complete disintegration” of the Larsen Ice Shelf took a *mere 35 days*.<sup>100</sup>
28. During the 2007-melt season, the extent of Arctic sea ice (frozen ocean water) declined precipitously to its lowest level since satellite measurements began in 1979.<sup>101</sup> By the end of 2010 Arctic sea ice was at the lowest level in the satellite record for the month of December.<sup>102</sup>
29. Arctic sea ice plays an important role in stabilizing the global climate, because it reflects back in to space much of the solar radiation that the region receives.<sup>103</sup> In

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Arctic sea ice extent, and in the patterns of change in Arctic and Antarctic surface temperatures.”).

<sup>95</sup> GARY BRAASCH & BILL MCKIBBEN, *EARTH UNDER FIRE* 18-20 (2009); *See also* J.E. Box et. al., (NOAA) *Greenland*, ARCTIC REPORT CARD at 55 (Oct. 2010) (“A clear pattern of exceptional and record-setting warm air temperatures is evident at long-term meteorological stations around Greenland.”).

<sup>96</sup> NASA Earth Observatory, *Ice Island Calves Off Petermann Glacier* (Aug. 2010), <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=45112&src=corss-nh>.

<sup>97</sup> Alister Doyle, *Antarctic Ice Shelf Set to Collapse Due to Warming*, Reuters (Jan. 19, 2009) <http://www.reuters.com/article/idUSTRE50I4G520090119>.

<sup>98</sup> NASA Earth Observatory, *Wilkins Ice Bridge Collapse* (April 2009), <http://earthobservatory.nasa.gov/IOTD/view.php?id=37806>.

<sup>99</sup> U.S. Geological Survey, *Coastal-Change and Glaciological Map of the Larsen Ice Shelf Area, Antarctica: 1940-2005* at 10 (2008)

<http://pubs.usgs.gov/imap/2600/B/Larsenpamphlet12600B.pdf>

<sup>100</sup> *Id.* at 10.

<sup>101</sup> National Snow and Ice Data Center (NSIDC), Press Release, *Arctic Sea Ice Shatters All Previous Record Lows* (October 1, 2007),

[http://nsidc.org/news/press/2007\\_seaiceminimum/20071001\\_pressrelease.html](http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html) (last visited April 9, 2011); EPA, *TS Endangerment Findings* at 27 (“Average arctic temperatures increased at almost twice the global average rate in the past 100 years.”).

<sup>102</sup> NSIDC, *Repeat of a negative Arctic Oscillation leads to warm Arctic, low sea ice extent*, ARCTIC SEA ICE NEWS & ANALYSIS, (January 5, 2011),

<http://nsidc.org/arcticseaicenews/2011/010511.html> (last visited April 9, 2011).

<sup>103</sup> EPA, *Climate Change Indicators in the United States*, 45 (2010), available at [http://www.epa.gov/climatechange/indicators/pdfs/ClimateIndicators\\_full.pdf](http://www.epa.gov/climatechange/indicators/pdfs/ClimateIndicators_full.pdf)

contrast, open ocean water absorbs much more heat from the sun, thus, amplifying human-induced warming and creating an increased global warming effect.<sup>104</sup> As arctic sea ice decreases the region is less capable of stabilizing the global climate and may act as a feedback loop (thereby aggravating global warming).<sup>105</sup>

30. Scientists have also documented an overall trend of sea-ice thinning.<sup>106</sup> The year 2010 also marked a record-low, spring snow cover in the Arctic since satellite observations first began in 1966.<sup>107</sup>
31. Similarly, there has been a general increase in permafrost temperatures and permafrost melting in Alaska and other parts of the Arctic (particularly in the last five years).<sup>108</sup> Scientists in Eastern Siberia and Canada have documented substantial methane releases as the permafrost melts.<sup>109</sup> Because much of the Arctic permafrost overlays old peat bogs, scientists believe (and are concerned) that the melting of the permafrost<sup>110</sup> may release methane that will further increase global warming to even more dangerous levels.<sup>111</sup>
32. Changes in these different aspects of Earth's climate system over the last century tell a coherent story: the impacts we see today are consistent with the scientific understanding of how the climate system should respond to GHG increases from human activities and how the Earth has responded in the past (reflected in such evidence as: ice cores that have trapped air from thousands and even a few million years ago, tree rings and seabed sediments that show where sea level was thousands and even millions of years ago).<sup>112</sup> Collectively, these changes cannot be explained as the product of natural climate variability or a tilt in the Earth's axis alone.<sup>113</sup> A large human contribution provides the best explanation of observed

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[hereinafter *Climate Change Indicators*]; See also EPA, *TS Endangerment Findings* at 40.

<sup>104</sup> EPA, *Climate Change Indicators* 52 (2010); USGCRP, *Global Climate Change Impacts* at 39.

<sup>105</sup> EPA, *Climate Change Indicators* 46 (2010).

<sup>106</sup> NOAA, *State of the Climate in 2009* at S114.

<sup>107</sup> NOAA, *Land*, ARCTIC REPORT CARD 29 (Oct. 2010), available at [http://www.arctic.noaa.gov/reportcard/ArcticReportCard\\_full\\_report.pdf](http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf).

<sup>108</sup> *Id.*

<sup>109</sup> NOAA, *State of the Climate in 2009* at S116.

<sup>110</sup> USGCRP, *Global Climate Change Impacts* at 139, 142 ("The higher temperatures are already contributing to . . . permafrost warming.").

<sup>111</sup> See IPCC, 4.4.6 *Tundra and Arctic/Antarctic Ecosystems*, CLIMATE CHANGE 2007: FOURTH ASSESSMENT REPORT, WORKING GROUP II, IMPACTS, ADAPTATION, AND VULNERABILITY 231 (2007).

<sup>112</sup> USGCRP, *Global Climate Change Impacts* at 26.

<sup>113</sup> *Id.*

climate changes.<sup>114</sup>

33. These well-documented and observable impacts from the changes in Earth's climate system highlight that the current level of atmospheric CO<sub>2</sub> concentration has already taken the planet into a danger zone.<sup>115</sup> The Earth will continue to warm in reaction to concentrations of CO<sub>2</sub> from past emissions as well as future emissions.<sup>116</sup> Warming already in the pipeline is mostly attributable to climate mechanisms that slowly heat the Earth's climate system in response to atmospheric CO<sub>2</sub>.<sup>117</sup>
34. The Earth's oceans play a significant role in keeping our atmospheric climate in the safe-zone.<sup>118</sup> The oceans constantly absorb CO<sub>2</sub> and release it back into the atmosphere at rates that maintain a balance.<sup>119</sup> Because we now release so much CO<sub>2</sub>, the oceans have absorbed about one-third of the CO<sub>2</sub> emitted from human activity over the past two centuries.<sup>120</sup> This capacity has slowed global warming, but at a cost: the added CO<sub>2</sub> has changed the chemistry of the oceans, causing the oceans' average surface pH (a measurement of hydrogen ions) to drop by an average of .11 units.<sup>121</sup> Although this may seem relatively small, the pH scale is logarithmic, so that a reduction of only one unit means that the solution has in fact become ten times more acidic.<sup>122</sup> A drop of .1 pH units means that the concentration of hydrogen ions in seawater has gone up by 30% in the past two centuries.<sup>123</sup> If CO<sub>2</sub> levels continue to rise to 500 ppm, we could see a further drop of .3 pH units by 2100.<sup>124</sup>
35. Ocean acidification harms animals that use calcium to build their shells, as well as single-celled organisms that are an essential part of the marine food chain.<sup>125</sup> This

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<sup>114</sup> Susan Solomon et al., *Irreversible climate change due to carbon dioxide emissions*, 106 PNAS 1704, 1704 – 1709 (Feb. 10, 2009), available at [www.pnas.org/cgi/doi/10.1073/pnas.0812721106](http://www.pnas.org/cgi/doi/10.1073/pnas.0812721106) (last visited April 9, 2011).

<sup>115</sup> USGCRP, *Global Climate Change Impacts* at 23.

<sup>116</sup> EPA, *TS Endangerment Findings* at 26.

<sup>117</sup> FRED PEARCE, *WITH SPEED AND VIOLENCE: WHY SCIENTISTS FEAR TIPPING POINTS IN CLIMATE CHANGE* 101-104 (Beacon Press 2007); IPCC, *AR4* at 72.

<sup>118</sup> See EPA, *TS Endangerment Findings* at 16, 38.

<sup>119</sup> IPCC, *AR4* at 72.

<sup>120</sup> Inter-Agency Report, *Impacts of Ocean Acidification* at 1; See also *TS Endangerment Findings* at 38 (“[T]he total inorganic carbon content of the oceans increased by 118 ± 19 gigatonnes of carbon (GtC) between 1750 and 1994 and continues to increase.”).

<sup>121</sup> EPA, *TS Endangerment Findings* at 38; Inter-Agency Report, *Impacts of Ocean Acidification* at 1.

<sup>122</sup> HARVEY BLATT, *AMERICA'S ENVIRONMENTAL REPORT CARD* 158 (MIT Press 2005).

<sup>123</sup> A. Ridgwell & D. Schmidt, *Past constraints on the vulnerability of marine calcifiers to massive carbon dioxide release*, 3 NATURE GEOSCIENCE 196, 196-200 (2010).

<sup>124</sup> IPCC, *AR4* at 52.

<sup>125</sup> EPA, *TS Endangerment Findings* at 38.

is because the acidified waters affect the structural integrity and survival of shell-building marine organisms such as corals and shellfish by effectively robbing them of the key chemical (carbonate ion) they need to build their skeletons.<sup>126</sup> It also adversely impacts some kinds of algae and single-celled organisms that use calcification processes for survival.<sup>127</sup> Some of these organisms comprise magnificent natural features, such as the White Cliffs of Dover.<sup>128</sup> Coral reefs are major habitats for ocean fauna; and calcifying algae and plankton are key components of the marine food chain.<sup>129</sup>

36. About 55 million years ago, the ocean absorbed a large amount of CO<sub>2</sub>, likely due to a release of methane from the ocean floor that caused the Earth's temperatures to rise several degrees and led to the extinction of many species worldwide.<sup>130</sup> The absorption of so much CO<sub>2</sub> also led to the death of calcifying organisms on the seafloor.<sup>131</sup> It took over 100,000 years for the ocean to regain its normal alkalinity.<sup>132</sup> The current level of CO<sub>2</sub> being taken in by the ocean decreases the ability of coral and other calcium-based marine life to produce their skeletons, which affects the growing of coral and thus coral reefs.<sup>133</sup> Other marine life, such as algae, also exhibit a reduced growing ability.<sup>134</sup> Thus, ocean acidification can disrupt the food chain, give non-calcium based creatures a competitive advantage, and limit the geographic reach of calcium based creatures.<sup>135</sup> In experiments, "[c]oral reef organisms have not demonstrated an ability to adapt to decreasing carbonate saturation state."<sup>136</sup> Finally, this disruption to the food web "could substantially alter the biodiversity and productivity of the ocean."<sup>137</sup>

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<sup>126</sup> USGCRP, *Global Climate Change Impacts* at 85.

<sup>127</sup> *Id.*

<sup>128</sup> Carl Zimmer, *An Ominous Warning on the Effects of Ocean Acidification*, Yale Environment360, (February 15, 2010), available at [http://e360.yale.edu/feature/an\\_ominous\\_warning\\_on\\_the\\_effects\\_of\\_ocean\\_acidification/2241/](http://e360.yale.edu/feature/an_ominous_warning_on_the_effects_of_ocean_acidification/2241/) (last visited April 9, 2011).

<sup>129</sup> EPA, *Coral Reef Biological Criteria: Using the Clean Water Act to Protect a National Treasure 3-1* (July 2010), available at [http://www.epa.gov/bioindicators/pdf/EPA-600-R-10-054\\_CoralReefBiologicalCriteria\\_UsingtheCleanWaterActtoProtectaNationalTreasure.pdf](http://www.epa.gov/bioindicators/pdf/EPA-600-R-10-054_CoralReefBiologicalCriteria_UsingtheCleanWaterActtoProtectaNationalTreasure.pdf) (last visited April 9, 2011).

<sup>130</sup> <sup>130</sup> James C. Zachos et al., *Rapid Acidification of the Ocean During the Paleocene-Eocene Thermal Maximum*, 308 SCIENCE 1611, 1611-1615 (June 10, 2005).

<sup>131</sup> *Id.*

<sup>132</sup> *Id.*

<sup>133</sup> Inter-Agency Report, *Impacts of Ocean Acidification* at 69.

<sup>134</sup> "Many of these organisms are important components of the marine food web." *Id.*

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> *Id.*

37. The warming of oceans also contributes to the bleaching of corals.<sup>138</sup> Corals contain a tiny alga that provides them with food and that accounts for their color.<sup>139</sup> When the oceans warm, the algae give off toxins, and the corals, in order to survive the toxin, expel the algae, thereby bleaching the coral.<sup>140</sup> If the water temperature does not fall enough to permit algae to survive within the coral without releasing the toxin, the corals will eventually die.<sup>141</sup> There have been several severe episodes of coral bleaching in recent years.<sup>142</sup> With continued warming, the coral may not be able to survive.<sup>143</sup>

38. Changes in water supply and water quality will also impact agriculture in the US.<sup>144</sup> Additionally, increased heat and associated issues such as pests, crop diseases, and weather extremes, will all impact crop and livestock production and quality.<sup>145</sup> For example, climate change in the United States has produced warmer summers, enabling the mountain pine beetle to produce two generations of beetles in a single summer season, where it had previously only been able to produce one; in Alaska, the spruce beetle is maturing in one year when it had previously taken two years.<sup>146</sup> The expansion of the forest beetle population has killed millions of hectares of trees across the United States and Canada and resulted in millions of dollars lost from decreased timber and tourism revenues.<sup>147</sup>

39. Agriculture is extremely susceptible to climate changes and higher temperatures generally reduce yields of desirable crops while promoting pest and weed<sup>148</sup>

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<sup>138</sup> EPA, *TS Endangerment Findings* at 103; USGCRP, *Global Climate Change Impacts* at 148.

<sup>139</sup> USGCRP, *Global Climate Change Impacts* at 84, 151-52; See EPA, *TS Endangerment Findings* at 138.

<sup>140</sup> USGCRP, *Global Climate Change Impacts* at 84, 151-52.

<sup>141</sup> See *id.*

<sup>142</sup> *Id.* at 84.

<sup>143</sup> *Id.*

<sup>144</sup> USGCRP, *Global Climate Change Impacts* at 126; See United States Department of State (USDS), *U.S. Climate Action Report 2010, Fifth National Communication of the United States of America Under the United Nations Framework Convention on Climate Change* [hereinafter *U.S. Climate Action Report*] 87 (June 2010) available at <http://www.state.gov/documents/organization/140636.pdf>.

<sup>145</sup> USDS, *U.S. Climate Action Report* at 87.

<sup>146</sup> U.S. Climate Change Science Program (USCCSP), *Weather and Climate Extreme in a Changing Climate, Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands* [hereinafter *Weather and Climate Extremes*] 15 (June 2008) available at <http://www.climate-science.gov/Library/sap/sap3-3/final-report/sap3-3-final-all.pdf>.

<sup>147</sup> *Id.*

<sup>148</sup> USCCSP & USDA, *The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity*, in *Synthesis and Assessment Product 4.3* at 59 ("Many weeds respond more positively to increasing CO<sub>2</sub> than most cash crops, . . . Recent research also suggests that glyphosate, the most widely used herbicide in the

proliferation.<sup>149</sup> Global climate change is predicted to decrease crop yields, increase crop prices, decrease worldwide calorie availability, and by 2050 increase child malnutrition by 20%.<sup>150</sup> Climate change threatens global food security and so any effort to mitigate global warming is effectively promoting a secure food supply.<sup>151</sup>

40. Glacial and ice cap melting is one of the major causes of global sea level change.<sup>152</sup> When glaciers and ice caps melt, this adds water to the ocean.<sup>153</sup> Another cause is that as ocean water warms, it expands and takes up more space; therefore, ocean warming "has been observed in each of the world's major ocean basins, and has been directly linked to human influences."<sup>154</sup>

41. Human-caused fossil fuel burning and the resulting climate change are already contributing to an increase in asthma, cancer, cardiovascular disease, stroke, heat-related morbidity and mortality, food-borne diseases, and neurological diseases and disorders.<sup>155</sup> The World Health Organization has concluded, "the health effects of a rapidly changing climate are likely to be overwhelmingly negative".<sup>156</sup> Climate change is not only expected to affect the basic requirements for maintaining health (clean air and water, sufficient food, and adequate shelter) but is likely to present new challenges for controlling infectious disease and even "halt or reverse the progress that the global public health community is now making against many of these diseases."<sup>157</sup>

42. As the 2010 Russian summer heat wave graphically demonstrated, heat can destroy crops, trigger wildfires, exacerbate air pollution, and cause increased

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United States, loses its efficacy on weeds grown at CO<sub>2</sub> levels that likely will occur in the coming decades.").

<sup>149</sup> International Food Policy Research Institute, *Food Policy Report: Climate Change-Impacts on Agriculture and Costs of Adaptation* vii (Oct. 2009).

<sup>150</sup> *Id.*

<sup>151</sup> *Id.* at ix ("Climate change will pose huge challenges to food-security efforts. Hence, any activity that supports agricultural adaptation also enhances food security.").

<sup>152</sup> M. Sharp & G. Wolken, *Glaciers Outside Greenland*, in ARCTIC REPORT CARD 48 (October 18, 2010).

<sup>153</sup> USGCRP, *Global Climate Change Impacts* at 18.

<sup>154</sup> *Id.*

<sup>155</sup> See The Center for Health and the Global Environment, Harvard Medical School, *Climate Change Futures: Health, Ecological, and Economic Dimensions* (November 2005) available at [eetd.lbl.gov/emills/pubs/pdf/climate-change-futures.pdf](http://eetd.lbl.gov/emills/pubs/pdf/climate-change-futures.pdf); USGCRP, *Global Climate Change Impacts* at 96-98.

<sup>156</sup> World Health Organization, *Climate and Health Fact Sheet* (July 2005), <http://www.who.int/globalchange/news/fsclimandhealth/en/index.html>.

<sup>157</sup> World Health Organization, *Protecting Health from Climate Change: Connecting Science, Policy, and People* 02 (2009), available at <http://www.who.int/globalchange/publications/reports/9789241598880/en/index.html>.

illness and deaths.<sup>158</sup> Similar impacts are occurring across the United States: the “number and frequency of forest fires and insect outbreaks are increasing in the interior West, the Southwest, and Alaska. Precipitation, streamflow, and stream temperatures are increasing in most of the continental United States. The western United States is experiencing reduced snowpack and earlier peaks in spring runoff. The growth of many crops and weeds is being stimulated. Migration of plant and animal species is changing the composition and structure of arid, polar, aquatic, coastal, and other ecosystems.”<sup>159</sup> Up to 30% of the millions of species on our planet could go extinct following just a few tenths of a degree warming above present.<sup>160</sup> Large wildfires in the Western US have quadrupled in recent years, a result of hotter temperatures and earlier snowmelt that contributes to dryer soils and vegetation.<sup>161</sup>

43. Similarly, climate change is already causing, and will continue to result in, more frequent, extreme, and costly weather events (such as hurricanes).<sup>162</sup> The annual number of major tropical storms and hurricanes has increased over the past 100 years in North America, coinciding with increasing temperatures in the Atlantic sea surface.<sup>163</sup>
44. The changing climate also raises national security concerns, as “climate change will add to tensions even in stable regions of the world.”<sup>164</sup> The United States may experience an additional need to accept immigrant and refugee populations as droughts increase and food production declines in other countries.<sup>165</sup> Increased extreme weather events (such as hurricanes) will also present an increased strain on foreign aid and call for military forces.<sup>166</sup> For instance, by 2025, 40% of the world’s population will be living in countries experiencing significant water shortages, while sea-level rise could cause displacement of tens, or even hundreds, of millions of people.<sup>167</sup>

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<sup>158</sup> See NOAA Earth System Research Lab, *The Russian Heat Wave 2010*, (September 2010) <http://www.esrl.noaa.gov/psd/csi/moscow2010/>.

<sup>159</sup> EPA, *TS Document* at 41 (citing USCCSP, Backlund et. al., 2008a).

<sup>160</sup> IPCC, *AR4, Working Group II: Impacts, Adaptation and Vulnerability- Magnitude of Impact*, available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/spmsspnm-c-15-magnitudes-of.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/spmsspnm-c-15-magnitudes-of.html).

<sup>161</sup> USGCRP, *Global Climate Change Impacts* at 95.

<sup>162</sup> *Id.* at 27 (“Many types of extreme weather events, such as heat waves and regional droughts, have become more frequent and intense during the past 40 to 50 years.”).

<sup>163</sup> National Science and Technology Council, *Scientific Assessment* at 7.

<sup>164</sup> The CNA Corporation, Military Advisory Board, *National Security and the Threat of Climate Change 7* (2007), available at [http://securityandclimate.cna.org/report/SecurityandClimate\\_Final.pdf](http://securityandclimate.cna.org/report/SecurityandClimate_Final.pdf) (last visited April 10, 2011).

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

<sup>167</sup> *Id.* at 16.

45. Paleoclimate data provides sobering evidence that major climate change can occur in decades, and that the consequences would be much more severe, and even disastrous, if a 2°C (3.6°F) change occurs over decades rather than hundreds of years.<sup>168</sup>
46. There are at least three reasons that the present, human-induced global warming is particularly significant. First, past global warming and cooling of a similar magnitude occurred before human civilization existed.<sup>169</sup> Second, global warming is happening far more rapidly than in past occurrences<sup>170</sup>, giving both humans and other forms of life only a short time to adapt to the changes. Human civilization and the crops and foods on which it depends have developed within a very narrow set of climatic conditions.<sup>171</sup> With the human population so large, with civilization so complex, centered around coastal cities, and dependent on water supplies fed by distant ice and snow melt, and with the great disparities in wealth between and within countries and regions, it will be nearly impossible to adapt to all of the climate change impacts in the quick time-frame in which they will occur.<sup>172</sup>
47. Third, and perhaps most importantly, the climate change we are now experiencing is caused largely by human activity.<sup>173</sup> This means that unlike with respect to past climate change events, by changing our activities humans can mitigate or even halt this warming before it causes catastrophic and irreversible effects.<sup>174</sup> Stopping, or at least greatly curtailing, the activities that discharge greenhouse gases into the

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<sup>168</sup> See James E. Hansen & Makiko Sato, *Paleoclimate Implications for Human-Made Climate Change* (January 18, 2011), available at [http://www.columbia.edu/~jeh1/mailings/2011/20110118\\_MilankovicPaper.pdf](http://www.columbia.edu/~jeh1/mailings/2011/20110118_MilankovicPaper.pdf) (last visited April 10, 2011).

<sup>169</sup> See James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 217-231 (2008).

<sup>170</sup> *Id.*

<sup>171</sup> J. Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts* 15, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN (Joseph F. DiMento & Pamela Doughman eds., MIT Press 2007).

<sup>172</sup> See generally United States Agency International Development (USAID), *Adapting to Climate Variability and Change: A Guidance Manual for Development Planning* (August 2007) (discussing difficulty of adapting to climate change)

[http://pdf.usaid.gov/pdf\\_docs/PNADJ990.pdf](http://pdf.usaid.gov/pdf_docs/PNADJ990.pdf); See also USGCRP, *Global Climate Change Impacts* at 12 (“Climate change will combine with pollution, population growth, overuse of resources, urbanization, and other social, economic, and environmental stresses to create larger impacts than from any of these factors alone.”).

<sup>173</sup> See USGCRP, *Global Climate Change Impacts* at 20; EPA, *TS Endangerment Findings* 47-51; IPCC, *AR4* at 39.

<sup>174</sup> USGCRP, *Global Climate Change Impacts* at 107 (“By mid-century and beyond, however, today’s emissions choices would generate starkly different climate futures: the lower the emissions, the smaller the climatic changes and resulting impacts.”).

air, such as the burning of fossil fuels and deforestation, and encouraging activities that remove CO<sub>2</sub> from the atmosphere (such as reforestation), can greatly reduce and even end global warming and its accompanying consequences within the lifetimes of today's children.<sup>175</sup>

48. To protect Earth's climate for present and future generations, we must restore Earth's energy balance. The best available science shows that if the planet once again sends as much energy into space as it absorbs from the sun, this will restore the planet's climate equilibrium.<sup>176</sup> Scientists have accurately calculated how Earth's energy balance will change if we reduce long-lived greenhouse gases such as carbon dioxide.<sup>177</sup> Humans have altered Earth's energy balance<sup>178</sup> and are currently causing a planetary energy imbalance of approximately one-half watt<sup>179</sup>. We would need to reduce atmospheric carbon dioxide concentrations by about 40 ppm, in order to increase Earth's heat radiation into space by one-half watt, if other long-lived gases stay the same as today.<sup>180</sup> We must reduce atmospheric carbon dioxide concentration to 350 ppm to avoid the threats contained herein.<sup>181</sup>

49. The best available science also shows that to protect Earth's natural systems, average global surface heating must not exceed 1° C this century.<sup>182</sup> To prevent

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<sup>175</sup> See *Id.* at 12 ("Future climate change and its impacts depend on choices made today.").

<sup>176</sup> John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE: WHAT IT MEANS FOR US, OUR CHILDREN, AND OUR GRANDCHILDREN 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., MIT Press 2007).

<sup>177</sup> JAMES HANSEN, STORMS OF MY GRANDCHILDREN 166 (2009) ("Also our best current estimate for the planet's mean energy imbalance over the past decade, thus averaged over the solar cycle, is about +0.5 watt per square meter. Reducing carbon dioxide to 350 ppm would increase emission to space 0.5 watt per square meter, restoring the planet's energy balance, to first approximation.").

<sup>178</sup> IPCC, *AR4* at 37 ("[T]he global average net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W/m<sup>2</sup>.").

<sup>179</sup> D.M. Murphy et al., *An observationally based energy balance for the Earth since 1950* 114 J. GEOPHYSICAL RES. LETTERS D17107 (September 2009).

<sup>180</sup> JAMES HANSEN, STORMS OF MY GRANDCHILDREN 166 (2009); See James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 217-231 (2008).

<sup>181</sup> See James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 217 (2008) ("If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, Paleoclimate evidence and ongoing climate change suggest that CO<sub>2</sub> will need to be reduced from its current 385 ppm to at most 350 ppm.").

<sup>182</sup> James E. Hansen & Makiko Sato, *Paleoclimate Implications for Human-Made Climate Change* (January 18, 2011), available at [http://www.columbia.edu/~jeh1/mailings/2011/20110118\\_MilankovicPaper.pdf](http://www.columbia.edu/~jeh1/mailings/2011/20110118_MilankovicPaper.pdf) (last visited April 10, 2011); See also IPCC, *AR4* at 48 ("For increases in global average

global heating greater than 1° C, concentrations of atmospheric CO<sub>2</sub> must decline to less than 350 ppm this century.<sup>183</sup> However, today's atmospheric CO<sub>2</sub> levels are about 390 ppm<sup>184</sup> and are rising.

50. Atmospheric CO<sub>2</sub> levels are currently on a path to reach a climatic tipping point.<sup>185</sup> Absent immediate action to reduce CO<sub>2</sub> emissions, atmospheric CO<sub>2</sub> may reach levels as high as about 1000 ppm<sup>186</sup> and a temperature increase of up to 5° C by 2100.<sup>187</sup> Life on Earth as we know it, is unsustainable at these levels.
51. The Department has the present ability to curtail the environmental harms detailed above. Atmospheric CO<sub>2</sub> concentrations will decrease if people stop (or greatly reduce) their burning of fossil fuels.<sup>188</sup> The environmental harms and threat to human health and safety as described above can only be avoided if atmospheric CO<sub>2</sub> concentrations are immediately reduced. Any more delay risks irreversible and unacceptable consequences for youth and future generations.
52. Fossil fuel emissions must decrease rapidly if atmospheric CO<sub>2</sub> is to be returned to a safe level in this century.<sup>189</sup> Improved forestry and agricultural practices can provide a net drawdown of atmospheric CO<sub>2</sub>, primarily via reforestation of degraded lands that are of little or no value for agricultural purposes, returning us to 350 ppm somewhat sooner.<sup>190</sup> However, the potential of these measures is limited. Immediate and substantial reductions in carbon dioxide emissions are required in order to ensure that the youth and future generations of children inherit a planet that is inhabitable.

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temperature exceeding 1.5 to 2.5°C and in concomitant atmospheric CO<sub>2</sub> concentrations, there are projected to be major changes in ecosystem structure and function, species' ecological interactions and shifts in species' geographical ranges, with predominantly negative consequences for biodiversity and ecosystem goods and services, e.g. water and food supply.”).

<sup>183</sup> See James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. J. 217, 217-231 (2008); JAMES HANSEN, STORMS OF MY GRANDCHILDREN (2009).

<sup>184</sup> CO<sub>2</sub>Now, *Earth's CO<sub>2</sub> Homepage*, Atmospheric CO<sub>2</sub> for March 2011, <http://co2now.org/> (last visited April 10, 2011).

<sup>185</sup> JAMES HANSEN, STORMS OF MY GRANDCHILDREN 224 – 230, 260 (2009).

<sup>186</sup> IPCC, *AR4* at 66-67.

<sup>187</sup> IPCC, *AR4* at 46.

<sup>188</sup> HARVEY BLATT, AMERICA'S ENVIRONMENTAL REPORT CARD xiii (MIT Press, 2005) (“How can we stop this change in our climate? The answer is clear. Stop burning coal and oil, the sources of nearly all the carbon dioxide increase.”).

<sup>189</sup> James E. Hansen et al., *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. 217, 217 (2008) (discussing the need to reduce atmospheric carbon dioxide concentration to 350 ppm).

<sup>190</sup> *Id.* at 227.

53. Because most fossil fuel CO<sub>2</sub> emissions will remain in the surface carbon reservoirs for millennia, it is imperative that fossil fuel CO<sub>2</sub> emissions be rapidly terminated, if atmospheric CO<sub>2</sub> is to be returned to a safe level in this century.<sup>191</sup> The failure to act promptly will not only increase the costs of future reductions, it will have irreversible adverse effects on the youth and all future generations, as detailed above.
54. To have the best chance of reducing the concentration of CO<sub>2</sub> in the atmosphere to 350 ppm by the end of the century and avoid heating over 1 degree Celsius over pre-industrial temperatures, the best available science concludes that atmospheric carbon dioxide emissions need to peak in 2012 and then begin to decline at a global average of 6% per year through 2050 and 5% per year through 2100. In addition, carbon sequestering forests and soils must be preserved and replanted to sequester an additional 100 gigatons of carbon through the end of the century.<sup>192</sup>
55. A zero- CO<sub>2</sub> U.S. energy system can be achieved within the next thirty to fifty years without acquiring carbon credits from other countries. In other words, actual physical emissions of CO<sub>2</sub> from fossil fuels can be eliminated with technologies that are now available or reasonably foreseeable. This can be done at reasonable cost by eliminating fossil fuel subsidies and creating annual and long-term CO<sub>2</sub> reduction targets. Net U.S. oil imports can be eliminated in about 25 years, possibly less. The result will also include large ancillary health benefits from the significant reduction of most regional and local air pollution, such as high ozone and particulate levels in cities, which is mainly due to fossil fuel combustion.<sup>193</sup>
56. The approaches to transition to a renewable energy system and to phase out fossil fuels by about 2050 include: A single national cap on fossil fuel use that declines to zero by 2050 or a gradually rising carbon tax with revenues used to promote a zero- CO<sub>2</sub> emissions energy system and to mitigate adverse income-distribution effects; increasingly stringent efficiency standards for buildings, appliances, and motor vehicles; elimination of subsidies for fossil fuels, nuclear energy, and biofuels from food crops coupled with investment in a vigorous and diverse research, development and demonstration program (including smart grid and storage technologies, electrification of transportation, stationary fuel cells for combined heat and power, biofuels from aquatic weeds like microalgae, use of aquatic weeds like microalgae in integrated gasification combined cycle plants, and use of hydrogen-fueled passenger aircraft); banning new coal-fired power plants; adoption of a policy that would aim to have essentially carbon-free state, local, and federal governments, including almost all of their buildings and vehicles by 2030; and adoption of a gradually increasing renewable portfolio standard for

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<sup>191</sup> See *id.* at 211.

<sup>192</sup> See App. III.

<sup>193</sup> Arjun Makhijani, *Carbon-Free, Nuclear-Free: A Roadmap for U.S. Energy Policy* (IEER Press and RDR Books, 2007)

electricity until it reaches 100 percent by about 2050.<sup>194</sup>

**B. CLIMATE CHANGE IS ALREADY OCCURRING IN THE STATE OF IOWA AND IS PROJECTED TO SIGNIFICANTLY IMPACT IOWA IN THE FUTURE.**

57. Temperature increases throughout the Midwest have been observed, with the most noticeable of these occurring during the winter.<sup>195</sup>
58. The length of the growing season has been extended by more than a week over the last several decades. This has resulted in an increase in the number of frost-free days and led to a decrease in the number of freezing days (those below 32 degrees) mainly in the early spring. The growing season is expected to increase a further 3 - 7 weeks longer in the next century.<sup>196</sup>
59. The number of extremely hot days (those with temperatures exceeding 90 degrees) is expected to increase from 50 to 85 per year, 30-60 days of which will boast temperatures exceeding 97 degrees.<sup>197</sup>
60. Heavy downpours in the Midwest are now twice as frequent as they were before the 1970s, and the volume of precipitation received per event has also increased. This trend is expected to continue into the current century. Rainfall in the summer months is expected to become much less frequent, but have more intense downpours during each event.<sup>198</sup>

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<sup>194</sup> Arjun Makhijani, *Carbon-Free, Nuclear-Free: A Roadmap for U.S. Energy Policy* (IEER Press and RDR Books, 2007)

<sup>195</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>196</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>197</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>198</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

61. Summer and winter precipitation has increased by 20% over the last three decades, making it the wettest period on record in this century. In the last 15 years, the Midwest has experienced 2 record-breaking flood events.<sup>199</sup>
62. During the winter and spring months, it is expected that more of the precipitation in the Midwest will fall as rain and not snow, decreasing snowpack and increasing the likelihood of pulse flooding events.<sup>200</sup>
63. Heat waves in the summer months are becoming increasingly frequent and severe, equal only to the heat and drought experienced in the Dust Bowl of the 1930s.<sup>201</sup>
64. An increase in atmospheric moisture, measured as dew point, has increased 3.5 degrees in the last 35 years. Increases in moisture are associated with increase in frequency and severity of thunderstorms, which are projected to continue to increase in the next century.<sup>202</sup>
65. With a decrease in snowfall, resultant snowpack is expected to be exhausted earlier in the warm season, causing declines in surface water flows and low flow conditions in the summer months when it is most needed for municipal, industrial and agricultural production.<sup>203</sup>
66. Many areas in the state of Iowa are prone to flooding. With predicted shifts in peak surface water flows combined with increases in winter and early spring precipitation, it is projected that there will be an increase in seasonal flooding in both the Mississippi and Missouri River basins.<sup>204</sup>
67. Stream flow across the state of Iowa is highly variable and prone to deficiencies in years with less-than-average precipitation, primarily in the south and central areas of the state. These conditions are likely to be further exacerbated by hotter climate and increased evaporation.<sup>205</sup>

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<sup>199</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>200</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>201</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>202</sup> IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>203</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

<sup>204</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>205</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

68. The combination of reduced snowpack melt and declines in groundwater recharge, and lake/stream flow levels in the late summer and early fall is expected to result in increased incidence and severity of drought. During the summer months the growing length of time between precipitation events is expected to further increase the likelihood of drought conditions.<sup>206</sup>
69. As evaporation increases with temperature and lake levels decrease, the concentration of pollutants and toxicants will increase and degrade water quality. This is not expected to be mitigated by pulse floods caused by precipitation events, as these events will cause an increase in runoff, introducing pollutants from adjacent agricultural, urban and industrial landscapes.<sup>207</sup>
70. A decrease in lake levels is expected to cause a loss of valuable habitat, including spawning grounds, for many species. Decreasing lake levels will also concentrate pollutants and toxicants, which will further harm fish species.<sup>208</sup>
71. Warmer temperatures and reduction in summer water levels is expected to cause wetlands to dry more often, and earlier in the season, with many expected to dry permanently resulting in a loss of wetland habitat for native fish and wildlife populations.<sup>209</sup>
72. Warmer water temperatures could alter seasonal mixing patterns in lakes, which provide oxygenated water to the deeper strata of the lake. In such a situation, this stratification could completely cut off oxygen supply to the bottom of the lake, creating low or no-oxygen zones, or "dead zones", which kill fish and other aquatic organisms.<sup>210</sup>
73. An increase in air and water temperature is expected to cause populations of cold-water fish, such as brook trout, lake trout and whitefish, to decline and be replaced by non-native invasive fish species.<sup>211</sup>

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<sup>206</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>207</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>208</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>209</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>210</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>211</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

74. Forest ecosystems are expected to shift in geographic range and species composition following northward trends in climate. With drier summer conditions, forested acres could be converted to grassland or pasture, while hotter, wet weather would encourage encroachment of southern pines.<sup>212</sup>
75. Drier summer conditions in forest ecosystems increases the likelihood of wildfire, which is further exacerbated by low moisture availability in soil and increased evaporation from plants.<sup>213</sup>
76. Forest ecosystems already stressed by drought conditions and wildfire are more susceptible to insect pest infestation, such as Gypsy Moth, which would normally be controlled by cold winter die off. Instead, these pests as well as non-native trees and plants, will be able to capitalize on warmer temperatures and milder winters and increase their populations.<sup>214</sup>
77. Initially high levels of atmospheric CO<sub>2</sub> are expected to benefit forest growth, however increasing levels of ground-level ozone, which is toxic to plants, is expected to contribute to an overall decline in forest production.<sup>215</sup>
78. Iowa's forest are expected to decline in size with climate change.<sup>216</sup>
79. Prairie Pothole wetland ecosystems have become increasingly fragmented with development and urban sprawl. Further stress resulting from climate changes with limited migration corridors in the highly fragmented landscape could result in population declines and local extinctions of several threatened and endangered species of water fowl, invertebrates, fish and amphibians.<sup>217</sup>
80. Increased seasonal flooding is expected to cause declines, and possibly local extinctions, of wildlife species ill-adapted to flood conditions. For example, Iowa's

<sup>212</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>213</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

<sup>214</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

<sup>215</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>216</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

<sup>217</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

wood turtle nests on riverine gravel bars in mid-summer, habitat that is likely to disappear in most areas with increased washing out due to the increased frequency of high water events.<sup>218</sup>

81. An increase in average temperature and in the frequency of severe heat waves and average summer temperatures are expected to increase the number of heat-related illnesses and deaths. Highest concern for impacts of extreme heat is in cities where the "heat island effect" increases the heat index higher than surrounding suburban and rural areas thus increasing the risk of heat-related health problems.<sup>219</sup>
82. Upper and lower respiratory allergies are made worse in conditions with increased heat and humidity. It is predicted that an increase in average temperatures of 2 degrees will significantly increase the incidence and severity of allergies.<sup>220</sup>
83. Warmer temperatures and milder winters are expected to increase the populations of disease-vectoring insects, like mosquitoes, which will increase incidences of diseases like malaria, California equine encephalitis, and West Nile Virus.<sup>221</sup>
84. Increases in undergrowth as a response to high levels of atmospheric CO<sub>2</sub> combined with warmer temperatures and milder winters may also cause an increase in the tick population, raising concerns for increased incidences of Lyme disease.<sup>222</sup>
85. Warm water conditions create a beneficial environment for the proliferation of waterborne diseases. Additionally, increases in precipitation in the winter and spring is expected to increasingly burden municipal wastewater treatment facilities, and flooding will increase the spread of waterborne diseases such as cryptosporidiosis, giardiasis, and gastrointestinal enteritis.<sup>223</sup>

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<sup>218</sup> IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>219</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>220</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>221</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>222</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998);

<sup>223</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h

86. Ground-level ozone, the main component in smog, is created by the volatilization of CO<sub>2</sub> emissions with heat and sunlight, and causes a serious risk of damage to lung tissue with repeated exposure. Ozone also exacerbates respiratory illnesses like asthma and allergies, and can cause permanent damage with very short exposure times. A 2 degree increase in temperature in Iowa is expected to increase ground-level ozone by 8%, especially in urban areas.<sup>224</sup>
87. During heat waves the demand for electricity increases, adds strain to water supplies already in decline during the hottest months of the year. Energy production will be severely limited, causing statewide brownouts and blackouts.<sup>225</sup>
88. With projected increases in winter and spring precipitation and the amount of rainfall per event, floods are expected to become more frequent. Flood damage to infrastructure, transportation ways, and property is expected to become increasingly costly to repair and replace.<sup>226</sup>
89. Increasing concern for human health and property damages as a result of climate change is expected to limit the availability of health and property insurance while simultaneously increasing the cost of available insurance.<sup>227</sup>
90. In general, crop production is expected to shift northward, following climate trends, which would make adaptation for farmers difficult. A decrease of as much as 23% in corn production is projected and a 3% decrease in soybean production. This translates into a loss of approximately 8% of Iowa's farmed acres.<sup>228</sup>
91. High precipitation levels and resultant flooding is expected to delay crop establishment and delay production in the early months of the growing season. An increase in frequency and size of floods is also likely to require increased drainage

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(1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>224</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>225</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

<sup>226</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004)

<sup>227</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000)

<sup>228</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

in farmed acres, increasing the cost of farming as well as causing nitrogen to leach more quickly from planted fields.<sup>229</sup>

92. Initially, the high levels of atmospheric CO<sub>2</sub> are expected to benefit crops, but as ground-level ozone increases with thermal stress, the toxicity to plants is expected to cause an overall loss in crop production.<sup>230</sup>

93. Warmer temperatures and milder winters are conducive to population booms in pest insects, such as corn earworm, aphid and leaf hoppers, invasive weeds and pathogens vectored by agricultural pests which threaten crops.<sup>231</sup>

94. Livestock production is expected to become much more costly with increased temperatures, as forage will become more scarce and expensive. Higher heat conditions can also directly affect cattle, causing stress, which decreases growth and milk production while increasing the cost of forage, cooling and ventilation.<sup>232</sup>

95. The size of Iowa's trees are expected to decrease in size and experience shifts in tree species composition. The deciduous forests in the southern part of the state could be replaced with post oak and blackjack oak, which are of little commercial value.<sup>233</sup>

**C. THE PUBLIC TRUST DOCTRINE DEMANDS THAT THE STATE OF IOWA ACT TO PRESERVE THE ATMOSPHERE AND PROVIDE A LIVABLE FUTURE FOR PRESENT AND FUTURE GENERATIONS OF IOWANS.**

96. There is no greater duty of parents than to provide for the protection and safety of their children. Likewise, there is no greater duty of our government than to ensure the protection and safety of its citizens, both born and yet to be born. As described

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<sup>229</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>230</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>231</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>232</sup> USGCRP, *Global Climate Change Impacts in the United States: Midwest* (2000); USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998); UCS, *Climate Change in the Hawkeye State: Impacts on Iowa Communities and Ecosystems* (2004); IA-CCIC, *Climate Change Impacts in Iowa* (2010)

<sup>233</sup> USEPA Office of Policy, *Climate Change and Iowa*, EPA Pub. No. 236-F-98-007h (1998)

above, the Earth's atmosphere is what has allowed humans to exist and flourish on this planet. But human activity has allowed the atmospheric equilibrium to become imbalanced, and now human life on Earth is in grave danger.

97. The atmosphere, essential to human existence, is an asset that belongs to all people. The public trust doctrine requires that as co-tenant trustee the State of Iowa and its agency, the Department of Natural Resources, holds vital natural resources in *trust* for both present and future generations of its citizens. These resources are so vital to the well being of all people, including the citizens of Iowa, that they must be protected by this distinctive, long-standing judicial principle. The atmosphere, including the air, is one of the most crucial assets of our public trust.
98. The public trust doctrine holds government responsible, as perpetual trustee, for the protection and preservation of the atmosphere for the benefit of both present and future generations. Today the citizens of Iowa are confronted with an atmospheric emergency.
99. If the Department, as the trustee of the atmosphere (an essential and fundamental resource that belongs to all citizens of Iowa), does not take immediate and extraordinary action to protect, preserve, and bring the Earth's atmosphere back into balance, then children in the State of Iowa, and countless future generations of children will suffer continually greater injuries and damaging consequences. If we, as a society, want to protect and keep the world safe for our children, including here in the great State of Iowa, then the Department must immediately accept its fiduciary responsibility as mandated by its trustee obligation and adopt the rule proposed herein.
100. The public trust imposes a legal obligation on the Department to affirmatively preserve and protect the citizen's trust assets from damage or loss, and not to use the asset in a manner that causes injury to the trust beneficiaries, be they present or future. The sovereign trustee has an affirmative, fiduciary duty to prevent waste, to use reasonable skill and care to preserve the trust property, and to maintain trust assets. The duty to protect the trust asset means that the Department must ensure the continued availability and existence of healthy trust resources for present and future beneficiaries. This duty mandates the development and utilization of the trust resource in a manner consistent with its conservation and in furtherance of the self-sufficiency of the State.
101. Iowa's fiduciary duty in this instance is defined by scientists' concrete prescriptions for carbon reductions. Scientists have clearly expressed the minimum carbon dioxide reductions that are needed, and requisite timelines for their implementation. The Department may not disclaim this fiduciary obligation, and is subject to an ongoing mandatory duty to preserve and protect this atmospheric trust asset.

102. The children in the State of Iowa are already experiencing serious environmental, economic, physical, emotional and aesthetic injuries as a result of Iowa's government's actions and inactions. If the Department fails to regulate and continues to contribute to this atmospheric crisis, then these injuries will only intensify and expand. A failure to immediately take bold action to protect and preserve Earth's safe climate-zone will cause irreparable harm to the citizens of Iowa and others. Immediate state action is imperative.
103. Once certain tipping points of energy imbalance and planetary heating have been exceeded, we will not be able to prevent the ensuing harm. A failure to act soon may cause the collapse of the Earth's natural systems resulting in a planet that is largely unfit for human life. The responsibility to protect and preserve the atmosphere for the citizens of Iowa is the duty of the Department. This mandate requires Iowa to protect and preserve that which belongs to all of its citizens and not to allow uses of those assets in a way that causes injury and damage to its citizen beneficiaries.
104. If sovereign governments, including the State of Iowa, do not immediately react to this crisis and act swiftly to reduce carbon dioxide emissions being released into the atmosphere, the environment in which humans and other life on Earth has thrived, will no longer exist. If Iowa does not act immediately to reduce carbon dioxide emissions into the atmosphere, the youth of Iowa and future generations of Iowa's children will face a planet that may be largely uninhabitable.
105. Iowa must protect and preserve the planet for its children and future generations. The United States, and the State of Iowa, must lead the way and reduce its carbon dioxide emissions. The United States of America, including the State of Iowa, not only has a large responsibility for currently harming the atmosphere, but it has the capacity and the technology to reduce emissions, as well as the will and obligation to protect its citizens. The rest of the world is looking to the United States to lead this effort. Without Iowa's action the catastrophic collapse of natural systems is inevitable.
106. The shared atmosphere is a natural resource vital to human health, welfare, and survival. Atmospheric health is essential to all survival. Our atmosphere is a fundamental natural resource entrusted to the care of our governments, and the State of Iowa, in trust, for its preservation and protection as a common property interest. As a co-tenant trustee of this shared asset the Department has a fiduciary, and perpetual, affirmative duty to preserve and protect the atmosphere for the present citizens and future generations of the State of Iowa as beneficiaries of this trust asset.

The Iowa Department of Natural Resources is the overarching governmental body, which includes the Air Quality Bureau. The Department of Natural Resources and the Air Quality Bureau have the authority as trustees of the public trust resources of the State of

Iowa and pursuant to statutory authority to adopt the proposed rule. Pursuant to Iowa Code, "The department [of Natural Resources] is the agency of the state to prevent, abate, and control air pollution by developing comprehensive plans and programs, establishing air quality and emission standards, issuing permits for construction of air contaminant sources and control equipment, issuing operating permits, requiring monitoring of air contaminant sources to ensure compliance, enforcing standards and permit requirements, providing technical assistance and educational and training programs, and reviewing and evaluating local control programs."<sup>234</sup> As such, the proposed rule appended to this petition is submitted to the Iowa Department of Natural Resources for the appropriate division's review, which would seem to be the Air Quality Bureau.

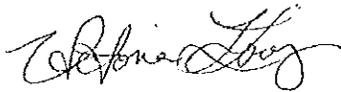
And so, for the reasons above, it is with utmost respect that Kids vs Global Warming hereby submits this petition on behalf of its members, the citizens of the State of Iowa, and present and future generations of minor children. The petitioner respectfully requests that the Iowa Department of Natural Resources promulgate a rule that requires the agency to take the necessary steps in order to protect the integrity of Earth's climate by adequately protecting our atmosphere, a public trust resource upon which all Iowans rely for their health, safety, sustenance, and security. Pursuant to IC 11-5.4(17A), the petitioner also requests a meeting with the Department to discuss the petition.<sup>235</sup>

Sincerely,



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Alec Loorz  
May 4, 2011



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Victoria Loorz  
May 4, 2011

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<sup>234</sup> IOWA CODE ANN. § 561-1.2(1) (West 2011).

<sup>235</sup> IOWA CODE ANN. § 11-5.4(17A) (West 2011).

**IA ADC 11-5.1 (2011)**

**11-5.1(17A) Petition for rule making.**

**5.1(1) Filing.** Any person or agency may file a petition for adoption of rules or request for review of rules with the Administrative Services Department, Office of the Director, Hoover State Office Building, Third Floor, Des Moines, Iowa 50319. A petition is deemed filed when it is received by the department. The department shall provide the petitioner with a file-stamped copy of the petition if the petitioner provides the department an extra copy for this purpose. The petition must be typewritten or legibly handwritten in ink and must substantially conform to the following form:

ADMINISTRATIVE SERVICES DEPARTMENT

Petition by (Name of Petitioner) )  
for the (adoption, amendment, or repeal) ) PETITION FOR  
of rules relating to (state the subject )  
matter). )  
\_\_\_\_\_

The petition must provide the following information:

- a. A statement of the specific rule-making action sought by the petitioner including the text or a summary of the contents of the proposed rule or amendment to a rule and, if it is a petition to amend or repeal a rule, a citation and the relevant language to the particular portion or portions of the rule proposed to be amended or repealed.
- b. A citation to any law deemed relevant to the department's authority to take the action urged or to the desirability of that action.
- c. A brief summary of petitioner's arguments in support of the action urged in the petition.
- d. A brief summary of any data supporting the action urged in the petition.
- e. The names and addresses of other persons, or a description of any class of persons, known by petitioner to be affected by or interested in, the proposed action which is the subject of the petition.
- f. Any request by petitioner for a meeting provided for by rule 5.4(17A) – see below.

**5.1(2) Content.** The petition must be dated and signed by the petitioner or the petitioner's representative. It must also include the name, mailing address, and telephone number of the petitioner and petitioner's representative, and a statement indicating the person to whom communications concerning the petition should be directed.

**5.1(3) Denial.** The director may deny a petition because it does not substantially conform to the required form.

**IA ADC 561-5.1**

**561-5.1(17A) Petition for rule making.**

In lieu of the words “(designate office)”, insert “Compliance and Enforcement Bureau, Environmental Protection Division, Department of Natural Resources, 502 East 9th Street, Des Moines, Iowa 50319-0034; telephone (515)281-8941”. Also, in lieu of the words “(AGENCY NAME)”, insert “DEPARTMENT OF NATURAL RESOURCES”.

**IA ADC 11-5.4**

**11-5.4(17A) Department consideration.**

**5.4(1)** Within 14 days after the filing of a petition, the department must submit a copy of the petition and any accompanying brief to the administrative rules coordinator and to the administrative rules review committee. Upon request by petitioner in the petition, the department must schedule a brief and informal meeting between the petitioner and the department to discuss the petition. The department may request the petitioner to submit additional information or argument concerning the petition. The department may also solicit comments from any person on the substance of the petition. Also, comments on the substance of the petition may be submitted to the department by any person.

**5.4(2)** Within 60 days after the filing of the petition, or within any longer period agreed to by the petitioner, the department must, in writing, deny the petition, and notify petitioner of its action and the specific grounds for the denial, or grant the petition and notify petitioner that it has instituted rule-making proceedings on the subject of the petition. The petitioner shall be deemed notified of the denial or grant of the petition on the date when the department mails or delivers the required notification to the petitioner.

**5.4(3)** Denial of a petition because it does not substantially conform to the required form does not preclude the filing of a new petition on the same subject that seeks to eliminate the grounds for the department's rejection of the petition.

## **Mandatory Statewide Carbon Dioxide Emissions Reduction Targets**

(1)(a) The state must limit emissions of carbon dioxide to achieve the following emission reductions for Iowa:

(i) Carbon dioxide emissions from fossil fuels must peak in 2012;

(ii) Starting in January 2013, statewide fossil fuel carbon dioxide emissions must be reduced by at least 6 percent per year;

(b) By January 1, 2012, the Department of Natural Resources must adopt a greenhouse gas reduction plan that when implemented achieves the limits set forth in (1)(a);

(c) Consistent with this directive, the department shall take the following actions:

(i) Annual progress reports on statewide greenhouse gas emissions must be published annually on the Department of Natural Resources website for public review. These reports must include an accounting and inventory for each and every source of all greenhouse gas emissions within the state, without exception. This inventory and accounting must be verified by an independent, third-party. Annual reports must be posted to the Department of Natural Resources website and be made publicly available no later than December 31 of each year, beginning in the year 2012.

(ii) Track progress toward meeting the emission reductions established in this subsection, including the results from policies currently in effect, those that have been previously adopted by the state, and policies to be adopted in the future, and publicly report on that progress annually.

(2) By December 31st of each year beginning in 2011, the Department of Natural Resources must report to the governor and the appropriate committees of the Senate and House of Representatives the total emissions of greenhouse gases for the preceding year, and totals in each major source sector. The Department of Natural Resources shall ensure that reporting rules adopted under section (1)(c)(i) allow it to develop a comprehensive inventory of emissions of greenhouse gases from all sectors of the state economy.

(3) To the extent that any rule in this section conflicts with any other rule in effect, the more stringent rule, favoring full disclosure of emissions and protection of the atmosphere, governs.

## The Case for Young People and Nature: A Path to a Healthy, Natural, Prosperous Future

James Hansen<sup>1</sup>, Pushker Kharecha<sup>1</sup>, Makiko Sato<sup>1</sup>, Paul Epstein<sup>2</sup>, Ove Hoegh-Guldberg<sup>3</sup>, Peter Smith<sup>4</sup>, Eelco J. Rohling<sup>5</sup>, Karina von Schuckmann<sup>6</sup>, James C. Zchos<sup>7</sup>,

**Abstract.** We describe scenarios that define how rapidly fossil fuel emissions must be phased down to restore Earth's energy balance and stabilize global climate. A scenario that stabilizes climate and preserves nature is technically possible and it is essential for the future of humanity. Despite overwhelming evidence, governments and the fossil fuel industry continue to propose that all fossil fuels must be exploited before the world turns predominantly to clean energies. If governments fail to adopt policies that cause rapid phase-down of fossil fuel emissions, today's children, future generations, and nature will bear the consequences through no fault of their own. Governments must act immediately to significantly reduce fossil fuel emissions to protect our children's future and avoid loss of crucial ecosystem services, or else be complicit in this loss and its consequences.

### 1. Background

Humanity is now the dominant force driving changes of Earth's atmospheric composition and thus future climate on the planet. Carbon dioxide (CO<sub>2</sub>) emitted in burning of fossil fuels is, according to best available science, the main cause of global warming in the past century. It is also well-understood that most of the CO<sub>2</sub> produced by burning fossil fuels will remain in the climate system for millennia. The risk of deleterious or even catastrophic effects of climate change driven by increasing CO<sub>2</sub> is now widely recognized by the relevant scientific community.

The climate system has great inertia because it contains a 4-kilometer deep ocean and 2-kilometer thick ice sheets. As a result, global climate responds only slowly, at least initially, to natural and human-made forcings of the system. Consequently, today's changes of atmospheric composition will be felt most by today's young people and the unborn, in other words, by people who have no possibility of protecting their own rights and their future well-being, and who currently depend on others who make decisions today that have consequences over future decades and centuries.

Governments have recognized the need to stabilize atmospheric composition at a level that avoids dangerous anthropogenic climate change, as formalized in the Framework Convention on Climate Change in 1992. Yet the resulting 1997 Kyoto Protocol was so ineffective that global fossil fuel emissions have since accelerated by 2.5% per year, compared to 1.5% per year in the preceding two decades.

Governments and businesses have learned to make assurances that they are working on clean energies and reduced emissions, but in view of the documented emissions pathway it is not inappropriate to describe their rhetoric as being basically 'greenwash'. The reality is that most governments, strongly influenced by the fossil fuel industry, continue to allow and even

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subsidize development of fossil fuel deposits. This situation was aptly described in a special energy supplement in the New York Times entitled 'There Will Be Fuel' (Krauss, 2010), which described massive efforts to expand fossil fuel extraction. These efforts include expansion of oil drilling to increasing depths of the global ocean, into the Arctic, and onto environmentally fragile public lands; squeezing of oil from tar sands; hydro-fracking to expand extraction of natural gas; and increased mining of coal via mechanized longwall mining and mountain-top removal.

The true costs of fossil fuels to human well-being and the biosphere is not imbedded in their price. Fossil fuels are the cheapest energy source today only if they are not made to pay for their damage to human health, to the environment, and to the future well-being of young people who will inherit on-going climate changes that are largely out of their control. Even a moderate but steadily rising price on carbon emissions would be sufficient to move the world toward clean energies, but such an approach has been effectively resisted by the fossil fuel industry.

The so-called 'north-south' injustice of climate disruption has been emphasized in international discussions, and payment of \$100B per year to developing countries has been proposed. Focus on this injustice, as developed countries reap the economic benefits of fossil fuels while developing countries are among the most vulnerable to the impacts of climate change, is appropriate. Payments, if used as intended, will support adaptation to climate change and mitigation of emissions from developing countries. We must be concerned, however, about the degree to which such payment, from adults in the North to adults in the South, are a modern form of indulgences, allowing fossil fuel emissions to continue with only marginal reductions or even increase.

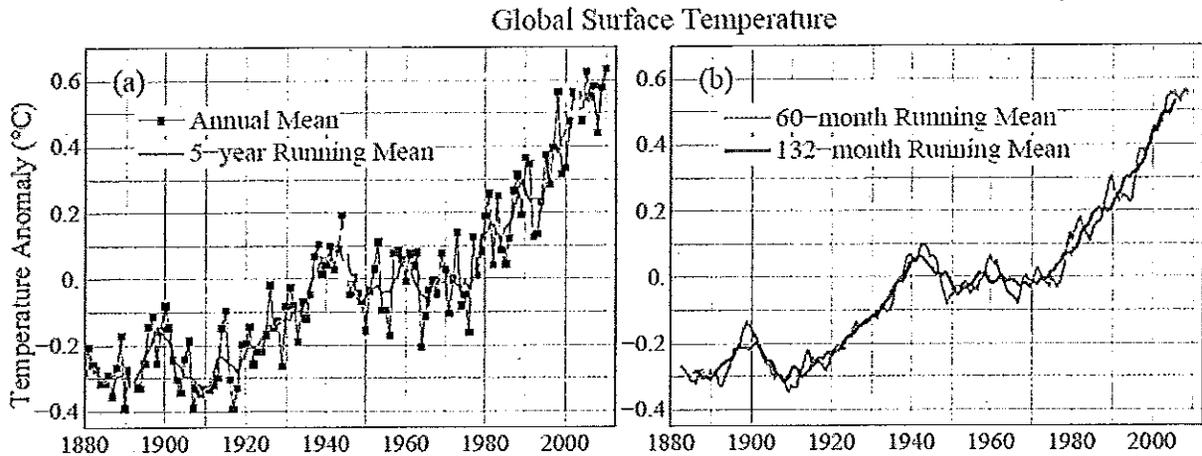
The greatest injustice of continued fossil fuel dominance of energy is the heaping of climate and environmental damages onto the heads of young people and those yet to be born in both developing and developed countries. The tragedy of this situation is that a pathway to a clean energy future is not only possible, but even economically sensible.

Fossil fuels today power engines of economic development and thus raise the standards of living throughout most of the world. But air and water pollution due to extraction and burning of fossil fuels kills more than 1,000,000 people per year and affects the health of billions of people (Cohen et al., 2005). Burning all fossil fuels would have a climate impact that literally produces a different planet than the one on which civilization developed. The consequences for young people, future generations, and other species would continue to mount over years and centuries. Ice sheet disintegration would cause continual shoreline adjustments with massive civil engineering cost implications as well as widespread heritage loss in the nearly uncountable number of coastal cities. Shifting of climatic zones and repeated climate disruptions would have enormous economic and social costs, especially in the developing world.

These consequences can be avoided via prompt transition to a clean energy future. The benefits would include a healthy environment with clean air and water, preservation of the shorelines and climatic zones that civilization is adapted to, and retention of the many benefits humanity derives from the remarkable diversity of species with which we share this planet.

It is appropriate that governments, instituted for the protection of all citizens, should be required to safeguard the future of young people and the unborn. Specific policies cannot be imposed by courts, but courts can require governments to present realistic plans to protect the rights of the young. These plans should be consistent with the scientifically-established rate at which emissions must be reduced to stabilize climate.

Science can also make clear that rapid transition to improved energy efficiency and clean energies is not only feasible but economically sensible, and that rapid transition requires a steadily rising price on undesirable emissions. Other actions by governments are needed, such as



**Figure 1.** Global surface temperature anomalies relative to 1951-1980 mean for (a) annual and 5-year running means through 2010, and (b) 60-month and 132-month running means through March 2011. Green bars are 2- $\sigma$  error estimates, i.e., 95% confidence intervals (data from Hansen et al., 2010).

enforcement of energy efficiency standards and investment in technology development. However, without the underlying incentive of a price on carbon emissions, such actions, as well as voluntary actions by concerned citizens, are only marginally effective. This is because such actions reduce the demand for fossil fuels, lower their price, and thus encourage fossil fuel use elsewhere. The price on carbon emissions, to be most effective, must be transparent and across-the-board, for the sake of public acceptance, for guidance of consumer decisions, and for guidance of business decisions including technology investments.

Here we summarize the emission reductions required to restore Earth's energy balance, limit CO<sub>2</sub> change to a level that avoids dangerous human-made interference with climate, assure a bright future for young people and future generations, and provide a planet on which both humans and our fellow species can continue to survive and thrive.

**2. Global Temperature**

Global surface temperature fluctuates chaotically within a limited range and it also responds to natural and human-made climate forcings. Climate forcings are imposed perturbations of Earth's energy balance. Examples of climate forcings are changes in the luminosity of the sun, volcanic eruptions that inject aerosols (fine particles) into Earth's stratosphere, and human-caused alterations of atmospheric composition, most notably the increase of atmospheric carbon dioxide (CO<sub>2</sub>) due to burning of fossil fuels.

**2.1. Modern Temperature**

Figure 1(a) shows annual-mean global temperature change over the past century. The year-to-year variability is partly unforced chaotic variability and partly forced climate change. For example, the global warmth of 1998 was a consequence of the strongest El Nino of the century, a natural warming of the tropical Pacific Ocean surface associated with a fluctuation of ocean dynamics. The strong cooling in 1992 was caused by stratospheric aerosols from the Mount Pinatubo volcanic eruption, which temporarily reduced sunlight reaching Earth's surface by as much as 2 percent.

Figure 1(b) shows global temperature change averaged over 5 years (60 months) and 11 years (132 months), for the purpose of minimizing year-to-year variability. The rapid warming during the past three decades is a forced climate change that has been shown to be a consequence of the simultaneous rapid growth of human-made atmospheric greenhouse gases, predominately CO<sub>2</sub> from fossil fuel burning (IPCC, 2007).

The basic physics underlying this global warming, the greenhouse effect, is simple. An increase of gases such as CO<sub>2</sub> makes the atmosphere more opaque at infrared wavelengths. This added opacity causes the planet's heat radiation to space to arise from higher, colder levels in the atmosphere, thus reducing emission of heat energy to space. The temporary imbalance between the energy absorbed from the sun and heat emission to space, causes the planet to warm until planetary energy balance is restored.

The great thermal inertia of Earth, primarily a consequence of the 4-kilometer (2½ mile) deep ocean, causes the global temperature response to a climate forcing to be slow. Because atmospheric CO<sub>2</sub> is continuing to increase, Earth is significantly out of energy balance – the solar energy being absorbed by the planet exceeds heat radiation to space. Measurement of Earth's energy imbalance provides the most precise quantitative evaluation of how much CO<sub>2</sub> must be reduced to stabilize climate, as discussed in Section 2.

However, we should first discuss global temperature, because most efforts to assess the level of climate change that would be 'dangerous' for humanity have focused on estimating a permissible level of global warming. Broad-based assessments, represented by the 'burning embers' diagram in IPCC (2001, 2007), suggested that major problems begin with global warming of 2-3°C relative to global temperature in year 2000. Sophisticated probabilistic analyses (Schneider and Mastrandrea, 2005) found a median 'dangerous' threshold of 2.85°C above global temperature in 2000, with the 90 percent confidence range being 1.45-4.65°C.

The conclusion that humanity could readily tolerate global warming up to a few degrees Celsius seemed to mesh with common sense. After all, people readily tolerate much larger regional and seasonal climate variations.

The fallacy of this logic became widely apparent only in recent years. (1) Summer sea ice cover in the Arctic plummeted in 2007 to an area 30 percent less than a few decades earlier. Continued growth of greenhouse gases will likely cause the loss of all summer sea ice within the next few decades, with large effects on wildlife and indigenous people, increased heat absorption at high latitudes, and potentially the release of massive amounts of methane, a powerful greenhouse gas, presently frozen in Arctic sediments on both land and sea floor. (2) The great continental ice sheets of Greenland and Antarctic have begun to shed ice at a rate, now several hundred cubic kilometers per year, which is continuing to accelerate. With the loss of protective sea ice and buttressing ice shelves, there is a danger that ice sheet mass loss will reach a level that causes catastrophic, and for all practical purposes irreversible, sea level rise. (3) Mountain glaciers are receding rapidly all around the world. Summer glacier melt provides fresh water to major world rivers during the dry season, so loss of the glaciers would be highly detrimental to billions of people. (4) The hot dry subtropical climate belts have expanded, affecting climate most notably in the southern United States, the Mediterranean and Middle East regions, and Australia, contributing to more intense droughts, summer heat waves, and devastating wildfires. (5) Coral reef ecosystems are already being impacted by a combination of ocean warming and acidification (a direct consequence of rising atmospheric CO<sub>2</sub>), resulting in a 1-2% per year decline in geographic extent. Coral reef ecosystems will be eliminated with continued increase of atmospheric CO<sub>2</sub>, with huge consequences for an estimated 500 million people that depend on the ecosystem services of coral reefs (Bruno and Selig, 2007; Hoegh-guldberg et al., 2007;

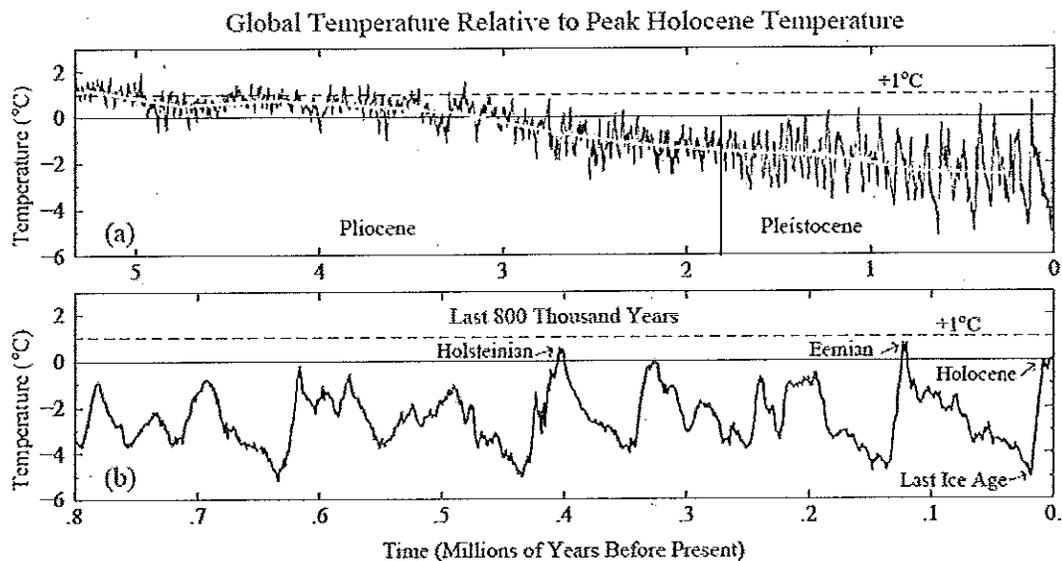


Figure 2. Global temperature relative to peak Holocene temperature (Hansen and Sato, 2011).

Veron et al., 2009). (6) So-called mega-heatwaves have become noticeably more frequent, for example the 2003 and 2010 heatwaves over Europe and large parts of Russia, each with heat-death tolls in the range of 55,000 to 70,000 (Barriopedro et al., 2011).

Reassessment of the dangerous level of global warming has been spurred by realization that large climate effects are already beginning while global warming is less than 1°C above preindustrial levels. The best tool for assessment is provided by paleoclimate, the history of ancient climates on Earth.

## 2.2. Paleoclimate Temperature

Hansen and Sato (2011) illustrate Earth's temperature on a broad range of time scales. Figure 2(a) shows estimated global mean temperature<sup>8</sup> during the Pliocene and Pleistocene, approximately the past five million years. Figure 2(b) shows higher temporal resolution, so that the more recent glacial to interglacial climate oscillations are more apparent.

Climate variations summarized in Figure 2 are huge. During the last ice age, 20,000 years ago, global mean surface temperature was about 5°C lower than today. But regional changes on land were larger. Most of Canada was under an ice sheet. New York City was buried under that ice sheet, as were Minneapolis and Seattle. On average the ice sheet was more than a mile (1.6 km) thick. Although it was thinner near its southern boundary, its thickness at the location of the above cities dwarfs the tallest buildings in today's world. Another ice sheet covered northwest Europe.

These huge climate changes were instigated by minor perturbations of Earth's orbit about the sun and the tilt of Earth's spin axis relative to the orbital plane. By altering the seasonal and geographical distribution of sunlight, the orbital perturbations cause small temperature change. Temperature change then drives two powerful amplifying feedbacks: higher temperature melts

<sup>8</sup> This estimate of global mean temperature is obtained from ocean sediments at many locations around the world (Zachos et al., 2001; Hansen et al., 2008). The composition of the shells of deep-sea-dwelling microscopic animals (foraminifera), preserved in ocean sediments, carry a record of ocean temperature. Deep ocean temperature change is about two-thirds as large as global mean surface temperature change for the range of climates from the last ice age to the present interglacial period; that proportionality factor is included in Figure 2.

ice globally, thus exposing darker surfaces that absorb more sunlight; higher temperature also causes the ocean and soil to release CO<sub>2</sub> and other greenhouse gases. These amplifying feedbacks have been shown, quantitatively, to be responsible for practically the entire glacial-to-interglacial temperature change.

In these slow natural climate changes the amplifying feedbacks (ice area and CO<sub>2</sub> amount) acted as slaves to weak orbital forcings. But today CO<sub>2</sub>, global temperature, and ice area are under the command of humanity: CO<sub>2</sub> has increased to levels not seen for at least 3 million years, global temperature is rising, and ice is melting rapidly all over the planet. Another ice age will never occur, unless humans go extinct. A single chlorofluorocarbon factory can produce gases with a climate forcing that exceeds the forcing due to Earth orbital perturbations.

During the climate oscillations summarized in Figure 2, Earth's climate remained in near equilibrium with its changing boundary conditions, i.e., with changing ice sheet area and changing atmospheric CO<sub>2</sub>. These natural boundary conditions changed slowly, over millennia, because the principal Earth orbital perturbations occur on time scales predominately in the range of 20,000 to 100,000 years.

Human-made changes of atmospheric composition are occurring much faster, on time scales of decades and centuries. The paleoclimate record does not tell us how rapidly the climate system will respond to the high-speed human-made change of climate forcings – our best guide will be observations of what is beginning to happen now. But the paleoclimate record does provide an indication of the eventual consequences of a given level of global warming.

The Eemian and Hosteinian interglacial periods, respectively about 130,000 and 400,000 years ago, were warmer than the Holocene, but global mean temperature in those periods was probably less than 1°C warmer than peak Holocene temperature (Figure 2b). Yet it was warm enough for sea level to reach mean levels 4-6 meters higher than today.

Global mean temperature 2°C higher than peak Holocene temperature has not existed since at least the Pliocene, a few million years ago. Sea level at that time was estimated to have been 15-25 meters higher than today. Changes of regional climate during these warm periods were much greater than the global mean changes.

How does today's global temperature, given the warming of the past century, compare with prior peak Holocene temperature? Holocene climate has been highly variable on a regional basis (Mayewski et al., 2004). However, Hansen and Sato (2011) show from records at several places around the globe that mean temperature has been remarkably constant during the Holocene. They estimate that the warming between the 1800s and the period 1951-1980 (a warming of ~0.25°C in the Goddard Institute for Space Studies analysis, Hansen et al., 2010) brought global temperatures back to approximately the peak Holocene level.

If the 1951-1980 global mean temperature approximates peak Holocene temperature, this implies that global temperature in 2000 (5-year running mean) was already 0.45°C above the peak Holocene temperature. The uncertainty in the peak Holocene temperature is at least several tenths of a degree Celsius. However, strong empirical evidence that global temperature has already risen above the prior peak Holocene temperature is provided by the ongoing mass loss of the Greenland and West Antarctic ice sheets, which began within the last 10-15 years. Sea level was stable for the past five to six thousand years, indicating that these ice sheets were in near mass balance. Now, however, both Greenland and West Antarctica are shedding ice at accelerating rates. This is strong evidence that today's global temperature has reached a level higher than prior Holocene temperatures.

The conclusion is that global warming of 1°C relative to 1880-1920 mean temperature (i.e., 0.75°C above the 1951-1980 temperature or 0.3°C above the 5-year running mean

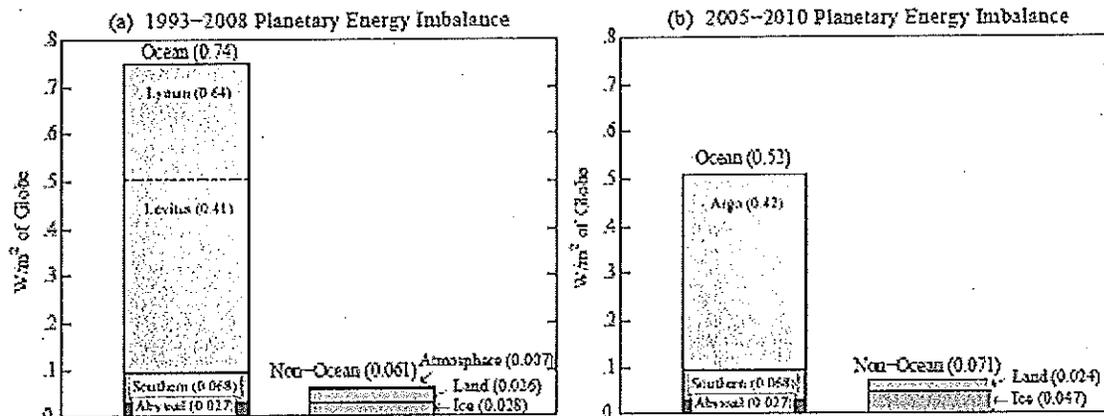


Figure 3. (a) Estimated planetary energy imbalance in 1993-2008, and (b) in 2005-2010. Data sources are given by Hansen et al. (2011).

temperature in 2000), if maintained for long, is already close to or into the 'dangerous' zone. The suggestion that 2°C global warming may be a 'safe' target is extremely unwise based on critical evidence accumulated over the past three decades. Global warming of this amount would be putting Earth on a path toward Pliocene-like conditions, i.e., a very different world marked by massive and continual disruptions to both society and ecosystems. It would be a world in which the world's species and ecosystems will have had no recent evolutionary experience, surely with consequences and disruptions to the ecosystem services that maintain human communities today. There are no credible arguments that such rapid would not have catastrophic circumstances for human well-being.

### 3. Earth's Energy Imbalance

Earth's energy balance is the ultimate measure of the status of Earth's climate. In a period of climate stability, Earth radiates the same amount of energy to space that it absorbs from incident sunlight. Today it is anticipated that Earth is out of balance because of increasing atmospheric CO<sub>2</sub>. Greenhouse gases such as CO<sub>2</sub> reduce Earth's heat radiation to space, thus causing a temporary energy imbalance, more energy coming in than going out. This imbalance causes Earth to warm until energy balance is restored.

The immediate planetary energy imbalance due to an increase of CO<sub>2</sub> can be calculated precisely. It does not require a climate model. The radiation physics is rigorously understood. However, the current planetary energy imbalance is complicated by the fact that increasing CO<sub>2</sub> is only one of the factors affecting Earth's energy balance, and Earth has already partly responded to the net climate forcing by warming 0.8°C in the past century.

Thus authoritative determination of the state of the climate system requires measuring the planet's current energy imbalance. This is a technical challenge, because the magnitude of the imbalance is expected to be only about 1 W/m<sup>2</sup> or less, so measurements must have an accuracy that approaches 0.1 W/m<sup>2</sup>. The most promising approach to achieve this accuracy is to measure ongoing changes of the heat content of the ocean, atmosphere, land, and ice on the planet.

The vast global ocean is the primary reservoir for changes of Earth's heat content. Because of the importance of this measurement, nations of the world launched a cooperative Argo float program, which has distributed more than 3000 floats around the world ocean

(Roemmich and Gilson, 2009). Each float repeatedly yoyos an instrument package to a depth of two kilometers and satellite-communicates the data to shore.

The Argo program did not attain planned distribution of floats until late 2007, but coverage reached 90% by 2005, allowing good accuracy provided that systematic measurement errors are kept sufficiently small. Prior experience showed how difficult it is to eliminate all measurement biases, but the exposure of the difficulties over the past decade leads to expectation that the data for the 6-year period 2005-2010 are the most precise achieved so far. The estimated standard error for that period, necessarily partly subjective, is  $0.15 \text{ W/m}^2$ .<sup>9</sup>

Smaller contributions to the planetary energy imbalance, from changes in the heat content of the land, ice and atmosphere, are also known more accurately in recent years. A key improvement during the past decade has been provided by the GRACE satellite that measures Earth's gravitational field with a precision that allows the rate of ice loss by Greenland and Antarctica to be monitored accurately.

Figure 3 summarizes the results of analyses of Earth's energy imbalance averaged over the periods 1993-2008 and 2005-2010. In the period 1993-2008 the planetary energy imbalance ranges from  $0.57 \text{ W/m}^2$  to  $0.80 \text{ W/m}^2$  among different analyses, with the lower value based on upper ocean heat content analysis of Levitus et al. (2009) and the higher value based on Lyman et al. (2010). For the period 2005-2010 the upper ocean heat content change is based on analysis of the Argo data by von Schuckmann and Le Traon (2011), which yields a planetary energy imbalance of  $0.59 \pm 0.15 \text{ W/m}^2$  (Hansen et al., 2011).

The energy imbalance in 2005-2010 is particularly important, because that period coincides with the lowest level of solar irradiance in the period since satellites began measuring the brightness of the sun in the late 1970s. Changes of solar irradiance are often hypothesized as being the one natural climate forcing with the potential to compete with human-made climate forcings, so measurements during the strongest solar minimum on record provide a conclusive evaluation of the sun's potential to reduce the planet's energy imbalance.

The conclusion is that Earth is out of energy balance by at least  $\sim 0.5 \text{ W/m}^2$ . Our measured  $0.59 \text{ W/m}^2$  for 2005-2010 suggests that the average imbalance over the 11-year solar cycle may be closer to  $0.75 \text{ W/m}^2$ .

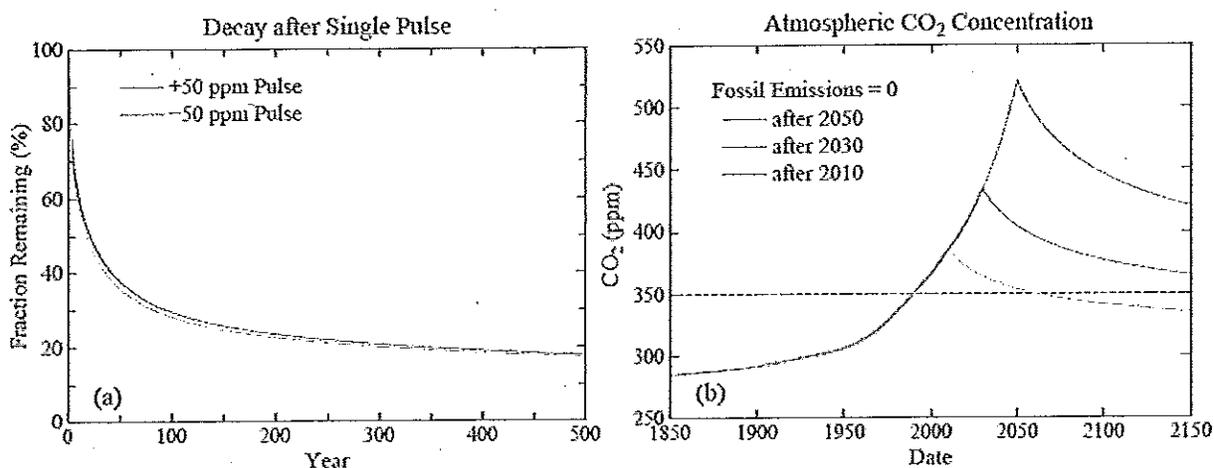
This planetary energy imbalance is substantial, with implications for future climate change. It means that global warming will continue on decadal time scales, as the  $0.8^\circ\text{C}$  global warming so far is the response to only about half of the net human-made climate forcing.

Knowledge of Earth's energy imbalance allows us to specify accurately how much  $\text{CO}_2$  must be reduced to restore energy balance and stabilize climate.  $\text{CO}_2$  must be reduced from the current level of 390 ppm to 360 ppm to increase Earth's heat radiation to space by  $0.5 \text{ W/m}^2$ , or to 345 ppm to increase heat radiation to space by  $0.75 \text{ W/m}^2$ , thus restoring Earth's energy balance and stabilizing climate.

Earth's energy imbalance thus provides accurate affirmation of a conclusion reached earlier (Hansen et al., 2008), that the appropriate initial target level of atmospheric  $\text{CO}_2$  to stabilize climate is " $<350 \text{ ppm}$ ". This target level may need to be adjusted as it is approached, but, considering the time required to achieve a reversal of atmospheric  $\text{CO}_2$  growth, more precise knowledge of the ultimate target for  $\text{CO}_2$  will be available by the time  $\text{CO}_2$  has been restored to a level approaching 350 ppm.

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<sup>9</sup> Barker et al. (2011) describe a remaining bias due to sensor drift in pressure measurements. That bias is reduced in the analysis of von Schuckmann and Le Traon by excluding data from floats on a pressure-bias black list and data from profiles that fail climatology checks, but errors remain and require further analysis.



**Figure 4.** (a) Decay of instantaneous (pulse) injection and extraction of atmospheric CO<sub>2</sub>, (b) atmospheric CO<sub>2</sub> if fossil fuel emissions terminated at end of 2011, 2030, 2050.

One reason that more precise specification than "<350 ppm" is inadvisable now is the uncertainty about the net effect of changes of other human-made climate forcings such as methane, other trace gases, reflecting aerosols, black soot, and the surface reflectivity. These forcings are smaller than that by CO<sub>2</sub>, but not negligible.

However, the important point is that CO<sub>2</sub> is the dominant climate forcing agent and it will be all the more so in the future. The CO<sub>2</sub> injected into the climate system by burning fossil fuels will continue to affect our climate for millennia. We cannot burn all of the fossil fuels without producing a different planet, with changes occurring with a rapidity that will make Earth far less hospitable for young people, future generations, and most other species.

#### 4. Carbon Cycle and Atmospheric CO<sub>2</sub>

The 'carbon cycle' that defines the fate of fossil fuel carbon injected into the climate system is well understood. This knowledge allows accurate estimation of the amount of fossil fuels that can be burned consistent with stabilization of climate this century.

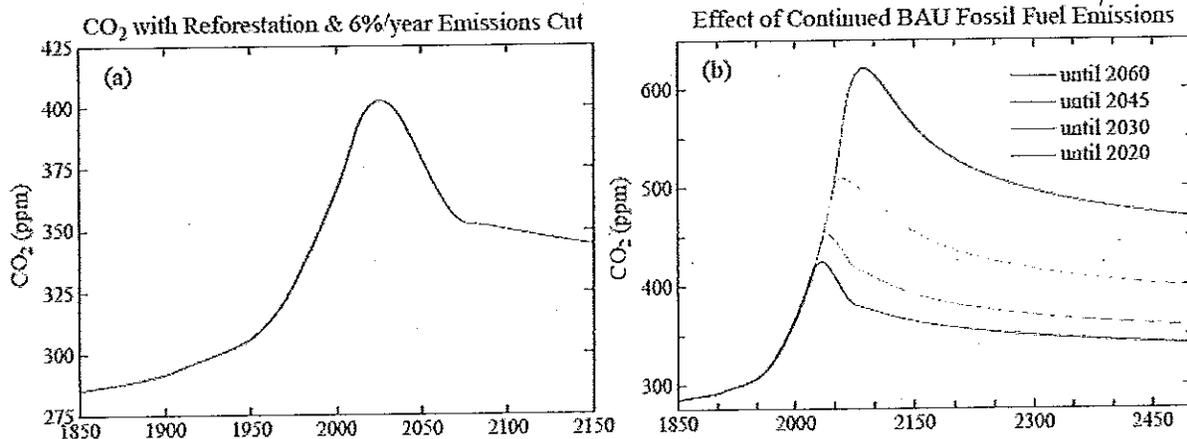
Atmospheric CO<sub>2</sub> is already about 390 ppm. Is it possible to return to 350 ppm or less within this century? Yes. Atmospheric CO<sub>2</sub> would decrease if we phased out fossil fuels. The CO<sub>2</sub> injected into the air by burning fossil fuels becomes distributed, over years, decades, and centuries, among the surface carbon reservoirs: the atmosphere, ocean, soil, and biosphere.

Carbon cycle models simulate how the CO<sub>2</sub> injected into the atmosphere becomes distributed among the carbon reservoirs. We use the well-tested Bern carbon cycle model (Joos et al., 1996)<sup>10</sup> to illustrate how rapidly atmospheric CO<sub>2</sub> can decrease.

Figure 4 (a) shows the decay of a pulse of CO<sub>2</sub> injected into the air. The atmospheric amount is reduced by half in about 25 years. However, after 500 years about one-fifth of the CO<sub>2</sub> is still in the atmosphere. Eventually, via weathering of rocks, this excess CO<sub>2</sub> will be deposited on the ocean floor as carbonate sediments. However, that process requires millennia.

It is informative, for later policy considerations, to note that a negative CO<sub>2</sub> pulse decays at about the same rate as positive pulse. Thus if we decide to suck CO<sub>2</sub> from the air, taking CO<sub>2</sub>

<sup>10</sup> Specifically, we use the dynamic-sink pulse-response function representation of the Bern carbon cycle model (Joos et al., 1996), as described by Kharecha and Hansen (2008) and Hansen et al. (2008).



**Figure 5.** (a) Atmospheric CO<sub>2</sub> if fossil fuel emissions are cut 6% per year beginning in 2012 and 100 GtC reforestation drawdown occurs in the 2031-2080 period, (b) Atmospheric CO<sub>2</sub> with BAU emission increases until 2020, 2030, 2045, and 2060, followed by 5% per year emission reductions.

out of the carbon cycle, for example by storing it in carbonate bricks, the magnitude of the CO<sub>2</sub> change will decline as the negative increment becomes spread among the carbon reservoirs.

It is also informative to examine how fast atmospheric CO<sub>2</sub> would decline if fossil fuel use were halted today, or in 20 years, or in 40 years. Results are shown in Figure 4 (b). If emissions were halted in 2011, CO<sub>2</sub> would decline to 350 ppm at mid-century. With a 20 year delay in halting emissions, CO<sub>2</sub> returns to 350 ppm at about 2250. With a 40 year delay, CO<sub>2</sub> does not return to 350 ppm until after year 3000.

The scenarios in Figure 4 (b) assume that emissions continue to increase at the 'business-as-usual' (BAU) rate of the past decade (increasing by just over 2% per year) until they are suddenly halted. The results are indicative of how difficult it will be to get back to 350 ppm, if fossil fuel emissions continue to accelerate.

Do these results imply that it is implausible to get back to 350 ppm in a way that is essentially 'natural', i.e., in a way other than a 'geo-engineering' approach that sucks CO<sub>2</sub> from the air? Not necessarily. There is one other major factor, in addition to fossil fuel use, that affects atmospheric CO<sub>2</sub> amount: deforestation/reforestation.

Fossil fuel emissions account for about 80 percent of the increase of atmospheric CO<sub>2</sub> from 275 ppm in the preindustrial atmosphere to 390 ppm today. The other 20 percent is from net deforestation (here net deforestation accounts for any forest regrowth in that period). We take net deforestation over the industrial era to be about 100 GtC (gigatons of carbon), with an uncertainty of at least 50 percent (Stocker et al., 2011)<sup>11</sup>.

There is considerable potential for extracting CO<sub>2</sub> from the atmosphere via reforestation and improved forestry and agricultural practices. The largest practical extraction is probably about 100 GtC (IPCC, 2001), i.e., equivalent to restoration of deforested land. Although complete restoration might appear to be unrealistic, 100 GtC uptake is probably feasible, because the human-enhanced atmospheric CO<sub>2</sub> level leads to an increase of carbon uptake by vegetation and soils. Competing uses for land – primarily expansion of agriculture to supply a growing world population – could complicate reforestation efforts. A decrease in the use of animal

<sup>11</sup> Net historical deforestation of 100 GtC and historical fossil fuel use yield good agreement with historical growth of atmospheric CO<sub>2</sub> (Figure S16 of Hansen et al., 2008), based on simulations with the Bern carbon cycle model.

products would substantially decrease the demand for agricultural land, as more than half of all crops are currently fed to livestock (Stehfest et al., 2009; UNEP, 2010).

We assume global reforestation (biospheric C uptake) of 100 GtC in our reforestation scenarios, with this obtained via a sinusoidal drawdown over the period 2031-2080. Alternative timings for this reforestation drawdown of CO<sub>2</sub> would have no qualitative effect on our conclusions about the potential for achieving a given CO<sub>2</sub> level such as 350 ppm.

Figure 5 (a) shows that 100 GtC reforestation results in atmospheric CO<sub>2</sub> declining to 350 ppm by the end of this century, provided that fossil fuel emissions decline by 6% per year beginning in 2013. Figure 5 (b) shows the effect of continued BAU fossil fuel emission (just over 2% per year) until 2020, 2030, 2045 and 2060 with 100 GtC reforestation in 2031-2080.

The scenario with emission cuts beginning in 2020 has atmospheric CO<sub>2</sub> return to 350 ppm at about 2300. If the initiation of emissions reduction is delayed to 2030 or later, then atmospheric CO<sub>2</sub> does not return to the 350 ppm level even by 2500.

The conclusion is that a major reforestation program does permit the possibility of returning CO<sub>2</sub> to the 350 ppm level within this century, but only if fossil fuel emission reductions begin promptly.

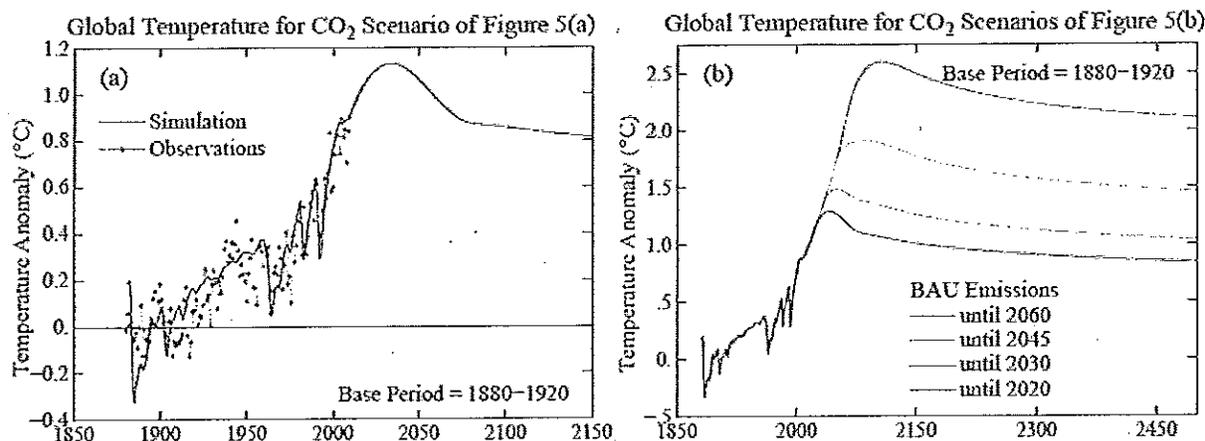
What about artificially drawing down atmospheric CO<sub>2</sub>? Some people may argue that, given the practical difficulty of overcoming fossil fuel lobbyists and persuading governments to move rapidly toward post-fossil-fuel clean energy economies, 'geo-engineering' is the only hope. At present there are no large-scale technologies for air capture of CO<sub>2</sub>, but it has been suggested that with strong research and development support and industrial scale pilot projects sustained over decades, it may be possible to achieve costs of about ~\$200/tC (Keith et al., 2006).

At this rate, the cost of removing 50 ppm<sup>12</sup> of CO<sub>2</sub> is ~\$20 trillion. However, as shown by Figure 4 (a), the resulting atmospheric CO<sub>2</sub> reduction is only ~15 ppm after 100 years, because most of the extraction will have leaked into other surface carbon reservoirs. The cost of CO<sub>2</sub> extraction needed to maintain a 50 ppm reduction on the century time scale is thus better estimated as ~\$60 trillion.

In section 7 we note the economic and social benefits of rapidly phasing over to clean energies and increased energy efficiency, as opposed to continued and expanded extraction of fossil fuels. For the moment, we simply note that the present generation will be passing the CO<sub>2</sub> clean-up costs on to today's young people and future generations.

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<sup>12</sup> The conversion factor to convert atmospheric CO<sub>2</sub> in ppm to GtC is 1 ppm ~ 2.12 GtC.



**Figure 6.** Simulated future global temperature for the CO<sub>2</sub> scenarios of Figure 5. Observed temperature record is from Hansen et al. (2010). Temperature is relative to the 1880-1920 mean. Subtract 0.26°C to use 1951-1980 as zero-point. Subtract 0.70°C to use 5-year running mean in 2000 as zero point.

## 5. Future Global Temperature Change

Future global temperature change will depend primarily upon atmospheric CO<sub>2</sub> amount. Although other greenhouse gases, such as methane and chlorofluorocarbons, contributed almost as much as CO<sub>2</sub> to the total human-caused climate forcings over the past century, CO<sub>2</sub> now accounts for more than 80 percent of the growth of greenhouse gas climate forcing (over the past 15 years). Natural climate forcings, such as changes of solar irradiance and volcanic aerosols, can cause global temperature variations, but their effect on the long-term global temperature trend is small compared with the effect of CO<sub>2</sub>.

A simple climate response function can provide a realistic estimate of expected global temperature change for a given scenario of future atmospheric CO<sub>2</sub>. Indeed, Hansen et al. (2011) show that such a function accurately replicates the results from sophisticated global climate models. In the simulations here we use the 'intermediate' response function of Hansen et al. (2011), which accurately replicates observed ocean heat uptake and observed temperature change over the past century, and we assume that the net change of other human-made climate forcings is small in comparison with the effect of CO<sub>2</sub>.

One important caveat must be stressed. These calculations, as with most global climate models, incorporate only the effect of the so-called 'fast feedbacks' in the climate system; such as water vapor, clouds, aerosols, and sea ice. Slow feedbacks, such as ice sheet disintegration and climate-induced changes of greenhouse gases, as may occur with the melting of tundra and warming of continental shelves, are not included.

Exclusion of slow feedbacks is appropriate for the past century, because we know the ice sheets were stable and our climate simulations employ observed greenhouse gas amounts. The observed greenhouse gas amount includes any contribution from slow feedbacks. Exclusion of slow feedbacks in the 21<sup>st</sup> century is a dubious assumption, used in our illustrative computations only because the rate at which slow feedbacks come into play is poorly understood. However, we must bear in mind the potential for slow feedbacks to fundamentally alter the nature of future climate change, specifically the possibility of creating a situation in which continued climate change is largely out of humanity's control.

Slow feedbacks are thus one important consideration that helps to crystallize the need to keep maximum warming from significantly exceeding 1°C. With the current global warming of

~0.8°C evidence of slow feedbacks is beginning to appear, e.g., melting of tundra with release of methane (Walter et al., 2006), submarine methane release from dissociation of sea-bed gas hydrates in association with sea water temperature increase (Westbrook et al., 2009), and increasing ice mass loss from Greenland and Antarctica (Velicogna, 2009). The fact that observed effects so far are small suggests that these feedbacks may not be a major factor if maximum global warming is only ~1°C and then recedes.

On the other hand, if BAU CO<sub>2</sub> emissions continue for many decades there is little doubt that these slow feedbacks will come into play in major ways. Because the CO<sub>2</sub> injected into the air stays in the surface carbon reservoirs for millennia, the slow feedbacks surely will occur. It is only a question of how fast they will come into play, and thus which generations will suffer the greatest consequences.

There is thus strong indication that we face a dichotomy. Either we achieve a scenario with declining global CO<sub>2</sub> emissions, thus preserving a planetary climate resembling that of the Holocene or we set in motion a dynamic transition to a very different planet.

Can we define the level of global warming that would necessarily push us into such a dynamic transition? Given present understanding of slow feedbacks, we cannot be precise. However, consider the case in Figure 6 in which BAU emissions continue to 2030. In that case, even though CO<sub>2</sub> emissions are phased out rapidly (5% per year emission reductions) after 2030 and 100 GtC reforestation occurs in 2031-2080, the (fast-feedback) human-caused global temperature rise reaches 1.5°C and stays above 1°C until after 2500. It is highly unlikely that the major ice sheets could remain stable at their present size with such long-lasting warmth. Even if BAU is continued only until 2020, the temperature rise exceeds 1°C for about 100 years.

In contrast to scenarios with continued BAU emissions, Figure 6 (a) shows the scenario with 6% per year decrease of fossil fuel CO<sub>2</sub> emissions and 100 GtC reforestation in the period 2031-2080. This scenario yields additional global warming of ~0.3°C. Global temperature relative to the 1880-1920 mean would barely exceed 1°C and would remain above 1°C for only about 3 decades. Thus this scenario provides the prospect that young people, future generations, and other life on the planet would have a chance of residing in a world similar to the one in which civilization developed.

The precise consequences if BAU emissions continue several decades are difficult to define, because such rapid growth of climate forcing would take the world into uncharted territory. Earth has experienced a huge range of climate states during its history, but there has never been such a large rapid increase of climate forcings as would occur with burning of most fossil fuels this century. The closest analogy in Earth's history is probably the PETM (Paleocene-Eocene Thermal Maximum) in which rapid global warming of at least 5°C occurred (Zachos et al., 2001), probably as a consequence of melting methane hydrates (Zeebe et al., 2009). The PETM is instructive because it occurred during a 10-million year period of global warming, and thus the methane release was probably a feedback effect magnifying the warming.

Global warming that occurred over the period from 60 Mya (million years ago) to 50 Mya can be confidently ascribed to increasing atmospheric CO<sub>2</sub>. That was the period in which the Indian subcontinent was moving rapidly through the Indian Ocean, just prior to its collision with Asia, when it began to push up the Himalayan Mountains and Tibetan Plateau. Continental drift over carbonate-rich ocean crust is the principal source of CO<sub>2</sub> from the solid Earth to the surface reservoirs of carbon.<sup>13</sup>

<sup>13</sup> The principal sink of CO<sub>2</sub>, i.e., the mechanism that returns carbon to the solid Earth on long time scales, is the weathering process. Chemical reactions associated with weathering of rocks results in rivers carrying carbonate sediments that are deposited on the ocean floor.

The global warming between 60 Mya and 50 Mya was about 5°C, thus at a rate less than 1°C per million years. Approximately 55 Mya there was, by paleoclimae standards, a very rapid release of 3000-5000 GtC into the surface climate system, presumably from melting of methane hydrates based on the absence of any other known source of that magnitude. This injection of carbon and rapid additional warming of about 5°C occurred over a period of about 10,000 years, with most of the carbon injection during two 1-2 thousand year intervals. The PETM witnessed the extinction of almost half of the deep ocean foraminifera (microscopic shelled animals, which serve as a biological indicator for ocean life in general), but, unlike several other large warming events in Earth's history, there was little extinction of land plants and animals.

The important point is that the rapid PETM carbon injection was comparable to what will occur if humanity burns most of the fossil fuels, but the PETM occurred over a period that was 10-100 times longer. The ability of life on Earth today to sustain a climate shock comparable to the PETM but occurring 10-100 times faster is highly problematic, at best. Climate zones would be shifting at a speed far faster than species have ever faced. Thus if humanity continues to burn most of the fossil fuels, Earth, and all of the species residing on it, will be pushed into uncharted climate change territory, with consequences that are practically impossible to foresee.

## 6. Consequences of Continued Global Warming

The unparalleled rapidity of the human-made increase of global climate forcing implies that there are no close paleoclimate analogies to the current situation. However, the combination of paleoclimate data and observations of ongoing climate change provide useful insight.

Paleoclimate data serve mainly as an indication of likely long-term responses to changed boundary conditions. Observations of ongoing climate change provide information relevant to the rate at which changes may occur.

Yet we must bear in mind that some important processes, such as ice sheet disintegration and species extermination, have the potential to be highly non-linear. That means changes can be slow until a tipping point is reached (Lenton et al., 2008) at which more rapid change occurs.

**Sea level.** If all or most of the fossil fuels are burned global warming will be at least several degrees Celsius. The eventual sea level change in response to the global warming will be many meters and global coast lines will be transfigured. However, we do not know how rapidly ice sheets can disintegrate, because Earth has never experienced such rapid global warming.

During the most recent prior interglacial period, the Eemian, global mean temperature was at most of the order of 1°C warmer than the Holocene (Figure 2). During the Eemian sea level averaged 4-6 meters higher than today, there were several instances of sea level change by 1-2 meters per century, and sea level reached a peak level about 8 meters higher than today (Hearty and Neumann, 2001; Rohling et al., 2008; Kopp et al, 2009; Muhs et al., 2011). During the Pliocene, when global mean temperature may have been 2°C warmer than the Holocene (Figure 2), sea level was probably 15-25 meters higher than today (Dowsett et al., 1999, 2009; Naish et al., 2009).

Expected sea level rise due to human-caused climate change has been controversial partly because the discussion and the predictions of IPCC (2001, 2007) have focused on sea level rise at a specific date, 2100. Recent estimates of likely sea level rise by 2100 are of the order of 1 m (Vermeer and Rahmstorf, 2009; Grinsted et al., 2010). Ice-dynamics studies estimate that rates of sea-level rise of 0.8 to 2 m per century are feasible (Pfeffer et al., 2008) and Antarctica alone may contribute up to 1.5 m per century (Turner et al., 2009). Hansen (2005, 2007) has argued that BAU CO<sub>2</sub> emissions produce a climate forcing so much larger than any experienced in prior

interglacial periods that a non-linear ice sheet response with multi-meter sea level rise may occur this century.

The best warning of an imminent period of sustained nonlinear ice sheet loss will be provided by accurate measurements of ice sheet mass. The GRACE satellite, which has been measuring Earth's gravitational field since 2003 reveals that the Greenland ice sheet is losing mass at an accelerating rate, now more than 200 cubic kilometers per year, and Antarctica is losing more than 100 cubic kilometers per year (Sorensen and Forsberg, 2010; Rignot et al., 2011). However, the present rate of sea level rise, 3 cm per decade, is moderate, and the ice sheet mass balance record is too short to determine whether we have entered a period of continually accelerating ice loss.

Satellite observations of Greenland show that the surface area with summer melting has increased over the period of record, which extends back to the late 1970s (Steffen et al., 2004; Tedesco et al., 2011). Yet the destabilizing mechanism of greatest concern is melting of ice shelves, tongues of ice that extend from the ice sheets into the oceans and buttress the ice sheets, limiting the rate of discharge of ice to the ocean. Ocean warming is causing shrinkage of ice shelves around Greenland and Antarctica (Rignot and Jacobs, 2002).

Loss of ice shelves can open a pathway to the ocean for portions of the ice sheets that rest on bedrock below sea level. Most of the West Antarctic ice sheet, which alone could raise sea level by 6 meters, is on bedrock below sea level, so it is the ice sheet most vulnerable to rapid change. However, parts of the larger East Antarctic ice sheet are also vulnerable. Indeed, satellite gravity and radar altimetry reveal that the Totten Glacier of East Antarctica, fronting a large ice mass grounded below sea level, is already beginning to lose mass (Rignot et al., 2008)

The important point is that uncertainties about sea level rise mainly concern the timing of large sea level rise if BAU emissions continue, not whether it will occur. If all or most fossil fuels are burned, the carbon will be in the climate system for many centuries, in which case multi-meter sea level rise should be expected (e.g., Rohling et al., 2009).

Children born today can expect to live most of this century. If BAU emissions continue, will they suffer large sea level rise, or will it be their children, or their grandchildren?

**Shifting climate zones.** Theory and climate models indicate that subtropical regions will expand poleward with global warming (Held and Soden, 2006; IPCC, 2007). Observations reveal that a 4-degree latitudinal shift has occurred already on average (Seidel and Randel, 2006), yielding increased aridity in southern United States (Barnett et al., 2008; Levi, 2008), the Mediterranean region, and Australia. Increased aridity and temperatures have contributed to increased forest fires that burn hotter and are more destructive in all of these regions (Westerling et al., 2006).

Although there is large year-to-year variability of seasonal temperature, decadal averages reveal that isotherms (lines of a given average temperature) having been moving poleward at a rate of about 50 km per decade during the past three decades (Hansen et al., 2006). This rate of shifting of climatic zones exceeds natural rates of change. The direction of movement has been monotonic (poleward) since about 1975. As long as the planet is as far out of energy balance as at present, that trend necessarily will continue, a conclusion based on comparison of the observed trend with interdecadal variability in climate simulations (Hansen et al., 2007).

Humans may be better able to adapt to shifting of climate zones, compared with many other species. However, political borders can interfere with migration, and indigenous ways of life may be adversely affected. Impacts are apparent in the Arctic, with melting tundra, reduced sea ice, and increased shoreline erosion. Effects of shifting climate zones may also be important

for native Americans who possess specific designated land areas, as well as other cultures with long-standing traditions in South America, Africa, Asia and Australia.

**Loss of Species.** Explosion of the human population and its presence on the landscape in the past few centuries is having a profound influence on the well being of all the other species. As recently as two decades ago biologists were more concerned with effects on biodiversity other than climate change, such as land use changes, nitrogen fertilization, and direct effects of increased atmospheric CO<sub>2</sub> on plant ecophysiology (Parmesan, 2006). However, easily discernible impacts on animals, plants, and insects of the nearly monotonic global warming during the past three decades (Figure 1) has sharply altered perceptions of the greatest threats.

A dramatic awakening was provided by sudden widespread decline of frogs, with extinction of entire mountain-restricted species attributed to global warming (Pounds et al., 1999, 2006). Pounds et al. (2006) attribute the amphibian declines principally to the fact that climate change encouraged outbreaks of deleterious fungi. Although there are somewhat different interpretations of detailed processes involved in the amphibian declines and extinctions (Alford et al., 2007; Fagotti and Pascolini, 2007), there is agreement that global warming is a main contributor to a global amphibian crisis: "The losses portend a planetary-scale mass extinction in the making. Unless humanity takes immediate action to stabilize the climate, while also fighting biodiversity's other threats, a multitude of species is likely to vanish" (Pounds et al., 2007).

Mountain-restricted species in general are particularly vulnerable to global warming. As warming causes isotherms to move up the mountainside so does the specific climate zone in which a given specific species can survive. If global warming continues unabated, i.e., if all fossil fuels are burned, many mountain-dwelling species will be driven to extinction.

The same is true for species living in polar regions. There is documented evidence of reductions in the population and health of Arctic species living in the southern parts of the Arctic and Antarctic species in the more northern parts of the Antarctic.

A critical factor for survival of some Arctic species will be retention of all-year sea ice. Continued BAU fossil fuel use will result in loss of all Arctic summer sea ice within the next several decades. In contrast, the scenario in Figure 5a, with global warming peaking just over 1°C and then declining slowly, should allow some summer sea ice to survive and then gradually increase to levels representative of recent decades.

The threat to species survival is not limited to mountain and polar species. Plant and animal distributions are a reflection of the regional climates to which they are adapted. Although species attempt to migrate in response to climate change, their paths may be blocked by human-constructed obstacles or natural barriers such as coast lines. As the shift of climate zones becomes comparable to the range of some species, the less mobile species will be driven to extinction. Because of extensive species interdependencies, this can lead to mass extinctions.

Mass extinctions have occurred in conjunction with rapid climate change during Earth's long history, and new species evolved over hundreds of thousands and millions of years. But such time scales are almost beyond human comprehension. If we drive many species to extinction we will leave a more desolate planet for our children, grandchildren, and as many generations as we can imagine.

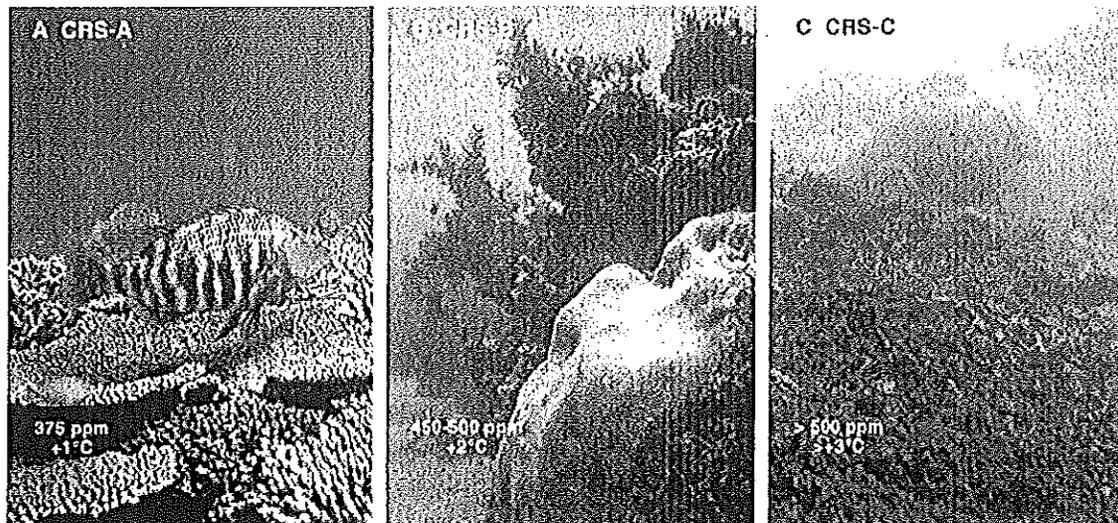


Figure 7. Extant reefs used as analogs (Hoegh-Guldberg et al., 2007) for ecological structures anticipated for scenarios A (375 ppm CO<sub>2</sub>, +1°C), B (450-500 ppm CO<sub>2</sub>, +2°C), C (>500 ppm CO<sub>2</sub>, >+3°C)

**Coral reef ecosystems.** Coral reef ecosystems are the most biologically diverse marine ecosystem, often described as the rainforests of the ocean. An estimated 1-9 million species (most of which have not yet been described; Reaka-Kudla 1997) populate coral reef ecosystems generating ecosystem services that are crucial to the well-being of at least 500 million people that populate tropical coastal areas. These coral reef ecosystems are vulnerable to current and future warming and acidification of tropical oceans. Acidification arises due to the production of carbonic acid as increasing amounts of CO<sub>2</sub> enter the world's oceans. Comparison of current changes with those seen in the palaeontological record indicate that ocean pH is already outside where it has been for several million years (Raven et al. 2005; Pelejero et al. 2010).

Mass coral bleaching and a slowing of coral calcification are already disrupting coral reef ecosystem health (Hoegh-Guldberg et al 2007; De'Ath et al. 2009). The decreased viability of reef-building corals have led to mass mortalities, increasing coral disease, and slowing of reef carbonate accretion. Together with more local stressors, the impacts of global climate change and ocean acidification are driving a rapid contraction (1-2% per year, Bruno and Selig 2007) in the extent of coral reef ecosystems.

Figure 7 shows extant reefs that are analogs for ecological structures anticipated by Hoegh-Guldberg et al. (2007) to be representative of ocean warming and acidification expected to accompany CO<sub>2</sub> levels of 375 ppm with +1°C, 450-500 ppm with +2°C, and >500 ppm with > +3°C. Loss of the three-dimensional framework that typifies coral reefs today has consequences for the millions of species that depend on this coral reef framework for their existence. The loss of these three-dimensional frameworks also has consequences for other important roles coral reefs play in supporting fisheries and protecting coastlines from wave stress. The consequences of losing coral reefs are likely to be substantial and economically devastating for multiple nations across the planet when combined with other impacts such as sea level rise.

The situation with coral reefs is summarized by Schuttenberg and Hoegh-Guldberg (2007) thus: "Although the current greenhouse trajectory is disastrous for coral reefs and the millions of people who depend on them for survival, we should not be lulled into accepting a world without corals. Only by imagining a world with corals will we build the resolve to solve the challenges ahead. We must avoid the "game over" syndrome and marshal the financial,

political, and technical resources to stabilize the climate and implement effective reef management with unprecedented urgency."

**Hydrologic extremes and storms.** The extremes of the hydrologic cycle are intensified as Earth becomes warmer. A warmer atmosphere holds more moisture, so heavy rains become more intense and increase flooding. Higher temperatures, on the other hand, cause an intensification of droughts, as does expansion of the subtropics with global warming. The most recent IPCC (2007) report confirms existence of expected trends, e.g., precipitation has generally increased over land north of 30°N and decreased in more tropical latitudes. Heavy precipitation events have increased substantially. Droughts are more common, especially in the tropics and subtropics. Tropospheric water vapor has increased.

**Mountain glaciers.** Mountain glaciers are in near-global retreat (IPCC, 2007). After a one-time added flush of fresh water, glacier demise will yield summers and autumns of frequently dry rivers originating in the Himalayas, Andes, and Rocky Mountains (Barnett et al., 2008) that now supply water to hundreds of millions of people. Present glacier retreat, and warming in the pipeline, indicate that 390 ppm of CO<sub>2</sub> is already a threat for future fresh water security.

**Human health.** Human health is affected by climate change in a large number of ways, principal ones summarized in Table 1 under the headings: (1) heat waves, (2) asthma and allergies, (3) infectious disease spread, (4) pests and disease spread across taxa: forests, crops and marine life, (5) winter weather anomalies, (6) drought, (7) food insecurity.

## 7. Societal Implications

The science is clear. Human-made climate forcing agents, principally CO<sub>2</sub> from burning of fossil fuels, have driven planet Earth out of energy balance – more energy coming in than going out. The human-made climate forcing agents are the principal cause of the global warming of 0.8°C in the past century, most of which occurred in the past few decades.

Earth's energy imbalance today is the fundamental quantity defining the state of the planet. With the completion of the near-global distribution of Argo floats and reduction of calibration problems, it is confirmed that the planet's energy imbalance averaged over several years, is at least 0.5 W/m<sup>2</sup>. The imbalance averaged over the past solar cycle is probably closer to 0.75 W/m<sup>2</sup>. An imbalance of this magnitude assures that continued global warming is in the pipeline, and thus so are increasing climate impacts.

Global climate effects are already apparent. Arctic warm season sea ice has decreased more than 30 percent over the past few decades. Mountain glaciers are receding rapidly all over the world. The Greenland and Antarctic ice sheets are shedding mass at an accelerating rate, already several hundred cubic kilometers per year. Climate zones are shifting poleward. The subtropics are expanding. Climate extremes are increasing. Summer heat of a degree that occurred only 2-3 percent of the time in the period 1950-1980, or, equivalently, in a typical summer covered 2-3 percent of the globe, now occurs over 20-40 percent of Earth's surface each summer ([http://www.columbia.edu/~jeh1/mailings/2011/20110327\\_Perceptions.pdf](http://www.columbia.edu/~jeh1/mailings/2011/20110327_Perceptions.pdf)). Within these expanded areas smaller regions of more extreme anomalies, such as the European heat wave of 2003 and the Moscow and Pakistan heat waves of 2010.

Global climate anomalies and climate impacts will continue to increase if fossil fuel use continues at current levels or increases. Earth's history provides our best measure of the ultimate climate response to a given level of climate forcing and global temperature change. Continuation of business-as-usual fossil fuel emissions for even a few decades would guarantee that global warming would pass well beyond the warmest interglacial periods in the past million

**Table 1. Climate Change Impacts on Human Health**

<p><b>Heatwaves.</b></p>	<p>Heatwaves are not only increasing in frequency, intensity and duration, but their nature is changing. Warmer nighttime temps [double the increase of average temperature since 1970 (Karl et al.)] and higher humidity (7% more for each 1°C warming) that raises heat indices and make heat-waves all the more lethal.</p>
<p><b>Asthma and allergies.</b></p>	<p>Asthma prevalence has more than doubled in the U.S. since 1980 and several exacerbating factors stem from burning fossil fuels.          Increased CO<sub>2</sub> and warming boost pollen production from fast growing trees in the spring and ragweed in the fall (the allergenic proteins also increase). Particulates help deliver pollen and mold spores deep into the lung sacs. Ground-level ozone primes the allergic response (and O<sub>3</sub> increases in heat-waves). Climate change has extended the allergy and asthma season two-four weeks in the Northern Hemisphere (depending on latitude) since 1970.          Increased CO<sub>2</sub> stimulates growth of poison ivy and a chemical in it (urushiol) that causes contact dermatitis.</p>
<p><b>Infectious disease spread.</b></p>	<p>The spread of infectious diseases is influenced by climate change in two ways: warming expands the geographic and temporal conditions conducive to transmission of vector-borne diseases (VBDs), while floods can leave “clusters” of mosquito-, water – and rodent-borne diseases (and spread toxins). With the ocean the repository for global warming and the atmosphere holding more water vapor, rain is increasing in intensity -- 7% overall in the US since 1970, 2”/day rains 14%, 4”/day rains 20%, and 6”/day rains 27% since 1970 (Groisman and Knight 2005), with multiple implications for health, crops and nutrition.          Tick-borne Lyme disease (LD) is the most important VBD in the US. LD case reports rose 8-fold in New Hampshire in the past decade and 10-fold (and now include all of its 16 counties). Warmer winters and disproportionate warming toward the poles mean that the changes in range are occurring faster than models based on changes in average temperatures project. Biological responses of vectors (and plants) to warming are, in general, underestimated and may be seen as leading indicators of warming due to the disproportionate winter (T<sub>minimum</sub> or T<sub>min</sub>) and high latitude warming.</p>
<p><b>Pests and disease spread across taxa: forests, crops and marine life.</b></p>	<p>Pests and diseases of forests, crops and marine life are favored in a warming world. Bark beetles are overwintering (absent sustained killing frosts) and expanding their range, and getting in more generations, while droughts in the West dry the resin that drowns the beetles as they try to drive through the bark. (Warming emboldens the pests while extremes weaken the hosts.) Forest health is also threatened in the Northeast U.S. (Asian Long-horned beetle and wooly adelgid of hemlock trees), setting the stage for increased wildfires with injury, death and air pollution, loss of carbon stores, and damage to oxygen and water supplies. In sum, forest pests threaten basic life support systems that underlie human health.          Crop pests and diseases are also encouraged by warming and extremes. Warming increases their potential range, while floods foster fungal growth and droughts favor whiteflies, aphid and locust. Higher CO<sub>2</sub> also stimulates growth of agricultural weeds. More pesticides, herbicides and fungicides (where available) pose other threats to human health. Crop pests take up to 40% of yield annually, totaling ~\$300 billion in losses (Pimentel)          Marine diseases (e.g., coral, sea urchin die-offs, and others), harmful algal blooms (from excess nutrients, loss of filtering wetlands, warmer seas and extreme weather events that trigger HABs by flushing nutrients into estuaries and coastal waters), plus the over 350 “dead zones” globally affect fisheries, thus nutrition and health.</p>
<p><b>Winter weather anomalies.</b></p>	<p>Increasing winter weather anomalies is a trend to be monitored. More winter precipitation is falling as rain rather than snow in the NH, increasing the chances for ice storms, while greater atmospheric moisture increases the chances of heavy snowfalls. Both affect ambulatory health (orthopedics), motor vehicle accidents, cardiac disease and power outages with accompanying health effects.</p>
<p><b>Drought.</b></p>	<p>Droughts are increasing in frequency, intensity, duration, and geographic extent. Drought and water stress are major killers in developing nations, are associated with disease outbreaks (water-borne cholera, mosquito-borne dengue fever (mosquitoes breed in stored water containers)), and drought and higher CO<sub>2</sub> increase the cyanide content of cassava, a staple food in Africa, leading to neurological disabilities and death.</p>
<p><b>Food insecurity.</b></p>	<p>Food insecurity is a major problem worldwide. Demand for meat, fuel prices, displacement of food crops with those grown for biofuels all contribute. But extreme weather events today are the acute driver. Russia’s extensive 2010 summer heat-wave (over six standard deviations from the norm, killing over 50,000) reduced wheat production ~40%; Pakistan and Australian floods in 2010 also affected wheat and other grains; and drought in China and the US Southwest are boosting grain prices and causing shortages in many nations. Food riots are occurring in Uganda and Burkino Faso, and the food and fuel hikes may be contributing to the uprisings in North Africa and the Middle East. Food shortages and price hikes contribute to malnutrition that underlies much of poor health and vulnerability to infectious diseases. Food insecurity also leads to political instability, conflict and war.</p>

years, implying transition to literally a different planet than the one that humanity has experienced. Today's young people and following generations would be faced with continuing climate change and climate impacts that would be out of their control.

Yet governments are taking no actions to substantially alter business-as-usual fossil fuel emissions. Rhetoric about a 'planet in peril' abounds. But actions speak louder than words. Continued investments in infrastructure to expand the scope and nature of fossil fuel extraction expose reality.

The matter is urgent. CO<sub>2</sub> injected into the atmosphere by burning fossil fuels remains in the surface climate system for millennia. The practicality of any scheme to extract CO<sub>2</sub> from the air is dubious. Potentially huge costs would be left to young people and future generations.

The apparent solution is to phase out fossil fuel emissions in favor of clean energies and energy efficiency. Governments have taken steps to promote renewable energies and encourage energy efficiency. But renewable energies total only a few percent of all energy sources, and improved efficiency only slows the growth of energy use. The transition to a post-fossil fuel world of clean energies is blocked by a fundamental fact, as certain as the law of gravity: as long as fossil fuels are the cheapest energy, they will be burned.

However, fossil fuels are cheapest only because they are subsidized directly and indirectly, and because they are not made to pay their costs to society – the costs of air and water pollution on human health and costs of present and future climate disruption and change.

Those people who prefer to continue business-as-usual assert that transition to fossil fuel alternatives would be economically harmful, and they implicitly assume that fossil fuel use can continue indefinitely. In reality, it will be necessary to move to clean energies eventually, and most economists believe that it would be economically beneficial to move in an orderly way to the post fossil fuel era via a steadily increasing price on carbon emissions.

A comprehensive assessment of the economics, the arguments for and against a rising carbon price, is provided in the book *The Case for a Carbon Tax* (Hsu, 2011). An across-the-board price on all fossil fuel CO<sub>2</sub> emissions emerges as the simplest, easiest, fastest and most effective way to phase down carbon emissions, and this approach presents fewer obstacles to international agreement.

The chief obstacles to a carbon price are often said to be the political difficulty, given the enormous resources that interest groups opposing it can bring to bear, and the difficulty of getting the public to understand arcane economic issues. On the other hand, a simple, transparent, gradually rising fee on carbon emissions collected, with the proceeds distributed to the public, can be described succinctly, as it has by Jim DiPeso, Policy Director of Republicans for Environmental Protection <http://www.rep.org/opinions/weblog/weblog10-10-11.html>

The basic matter, however, is not one of economics. It is a matter of morality – a matter of intergenerational justice. The blame, if we fail to stand up and demand a change of course, will fall on us, the current generation of adults. Our parents honestly did not know that their actions could harm future generations. We, the current generation, could only pretend that we did not know.

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## **Exhibit B**

### Mandatory Statewide Carbon Dioxide Emission Reduction Targets

(1)(a) The state must limit emissions of carbon dioxide to achieve the following emission reductions for Iowa:

- (i) Carbon dioxide emissions from fossil fuels must peak in 2012;
- (ii) Starting in January 2013, statewide fossil fuel carbon dioxide emissions must be reduced by at least 6 percent per year;

(b) By January 1, 2012, the Department of Natural Resources must adopt a greenhouse gas reduction plan that when implemented achieves the limits set forth in (1)(a);

(c) Consistent with this directive, the department shall take the following actions:

(i) Annual progress reports on statewide greenhouse gas emissions must be published annually on the Department of Natural Resources website for public review.

These reports must include an accounting and inventory for each and every source of all greenhouse gas emissions within the state, without exception. This inventory and accounting must be verified by an independent, third-party. Annual reports must be posted to the Department of Natural Resources website and be made publicly available no later than December 31 of each year, beginning in the year 2012.

(ii) Track progress toward meeting the emission reductions established in this subsection, including the results from policies currently in effect, those that have been previously adopted by the state, and policies to be adopted in the future, and publicly report on that progress annually.

(2) By December 31st of each year beginning in 2011, the Department of Natural Resources must report to the governor and the appropriate committees of the Senate and House of Representatives the total emissions of greenhouse gases for the preceding year, and totals in each major source sector. The Department of Natural Resources shall ensure that reporting rules adopted under section (1)(c)(i) allow it to develop a comprehensive inventory of emissions of greenhouse gases from all sectors of the state economy.

(3) To the extent that any rule in this section conflicts with any other rule in effect, the more stringent rule, favoring full disclosure of emissions and protection of the atmosphere, governs.

## Exhibit C

### ARC 9224B ENVIRONMENTAL PROTECTION COMMISSION[567] Adopted and Filed

Pursuant to the authority of Iowa Code sections 455B.131, 455B.133, 455B.134, and 455B.152, the Environmental Protection Commission hereby amends Chapter 22, "Controlling Pollution," and Chapter 33, "Special Regulations and Construction Permit Requirements for Major Stationary Sources—Prevention of Significant Deterioration (PSD) of Air Quality," Iowa Administrative Code.

The purpose of the adopted amendments is to ensure that sources of greenhouse gas emissions in Iowa are regulated in the same manner and at the same levels as specified in new federal regulations for greenhouse gases, the Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas Tailoring Rule (Tailoring Rule).

Notice of Intended Action was published in the Iowa Administrative Bulletin (IAB) on August 11, 2010, as **ARC 8999B**. A public hearing was held on September 13, 2010. The Department did not receive any comments at the public hearing. The Department received ten sets of written comments before the close of the public comment period on September 14, 2010. The submitted comments and the Department's response to the comments are summarized in the public responsiveness summary available from the Department. The Department did not make any changes to the adopted amendments from those published under Notice.

On April 2, 2007, the U.S. Supreme Court found that greenhouse gases, including carbon dioxide, are air pollutants covered by the Clean Air Act (*Massachusetts v. EPA*, 549 U.S. 497). The Court found that the U.S. Environmental Protection Agency (EPA) was required to determine whether emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

In April 2009, EPA responded to the Court by proposing a finding that greenhouse gases contribute to air pollution that may endanger public health or welfare. On December 7, 2009, EPA issued two distinct findings regarding greenhouse gases, as follows:

1. Endangerment Finding: EPA found that the current and projected atmospheric concentrations of the six key, well-mixed greenhouse gases that include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) threaten the public health and welfare of current and future generations; and

2. Cause or Contribute Finding: EPA found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to greenhouse gas pollution, which, in turn, threatens public health and welfare.

These findings, which were published December 15, 2009, did not impose any requirements on industry or other entities. However, these findings were a prerequisite for finalizing the greenhouse gas standards for light-duty vehicles and for setting a schedule to regulate greenhouse gases from stationary sources.

On March 29, 2010, EPA completed its reconsideration of the December 18, 2008, memorandum entitled "EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program," often called "the Johnson memo."

The final action confirmed that any new pollutant that EPA may regulate becomes covered under the PSD program on the date when the EPA rule regulating that new pollutant takes effect. This action clarified that, for greenhouse gases, the date of PSD program coverage will be January 2, 2011, the date the light-duty vehicle rule is expected to take effect.

On April 1, 2010, EPA finalized the light-duty vehicle rule controlling greenhouse gas emissions. This rule confirmed that January 2, 2011, is the earliest date that a 2012 model year vehicle meeting these rule requirements may be sold in the United States. On that date, Clean Air Act permitting program requirements will apply to stationary sources of greenhouse gases.

On May 13, 2010, EPA issued the final Tailoring Rule that establishes EPA's approach to addressing greenhouse gas (GHG) emissions from stationary sources under Clean Air Act permitting programs. EPA published the final Tailoring Rule in the Federal Register on June 3, 2010.

The Tailoring Rule for GHG emissions sets thresholds that specify when permits under the PSD and Title V programs are required for new and existing facilities. The Tailoring Rule tailors the requirements of these permitting programs to limit which facilities will be required to obtain PSD and Title V permits. The Tailoring Rule establishes a schedule that will initially focus air permitting programs on the largest sources that are already subject to PSD and Title V requirements. The Tailoring Rule then expands to cover the largest sources of GHG emissions that may not have been previously covered by the PSD or Title V permitting program for other pollutants.

EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to PSD and Title V permitting requirements under the Tailoring Rule, including the nation's largest GHG emitters, such as power plants, refineries, and cement production facilities, as well as other large industrial or commercial emitters. GHG emissions from smaller industrial or commercial facilities will not be covered by the PSD or Title V programs at this time.

The PSD and Title V emissions thresholds for criteria pollutants such as fine particulate, sulfur dioxide and nitrogen dioxide are 100 and 250 tons per year (tpy). EPA has determined that while these thresholds are appropriate for criteria pollutants, they are not feasible for GHGs because GHGs are emitted at much higher levels.

Through the Tailoring Rule, EPA will phase in the GHG permitting requirements in two initial steps outlined below, followed by assessment and rule making to phase in appropriate, additional requirements for controlling GHG emissions from stationary sources.

Step 1 (January 2, 2011, to June 30, 2011): Effective January 2, 2011, only sources currently subject to the PSD permitting program (i.e., sources that are newly constructed or modified in a way that significantly increases emissions of a pollutant other than GHGs) would be subject to permitting requirements for their GHG emissions under the PSD program. For these projects, only GHG increases of 75,000 tpy or more of total GHG (based on potential to emit (PTE) and using a specific formula to calculate "tpy CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e)" as defined in the Tailoring Rule) would be subject to PSD for GHG emissions.

Similarly, for the Title V program, only sources currently subject to the program (i.e., newly constructed or existing major sources for a pollutant other than GHGs) would be subject to Title V requirements for GHG.

During this time, no sources would be subject to PSD or Title V permitting requirements due solely to GHG emissions.

Step 2 (July 1, 2011, to June 30, 2013): In this phase, PSD permitting requirements will, for the first time, cover new construction projects with a GHG PTE of at least 100,000 tpy CO<sub>2</sub>e even if the projects do not exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that increase their GHG PTE by at least 75,000 tpy CO<sub>2</sub>e will be subject to permitting requirements, even if the modifications do not significantly increase emissions of any other pollutant.

In Step 2, Title V operating permit requirements will, for the first time, apply to sources based on their GHG emissions even if the requirements would not apply based on emissions of any other pollutant. Facilities with a GHG PTE of 100,000 tpy CO<sub>2</sub>e or more will be subject to Title V permitting requirements.

In the Tailoring Rule, EPA commits to undertake another rule making to begin in 2011. The federal rule making will request comments on an additional step for phasing in GHG permitting and may discuss whether certain smaller sources can be permanently excluded from permitting. EPA states that it will not require permitting for smaller sources (those with a GHG PTE below 50,000 tpy) until at least April 30, 2016.

EPA indicates in the Tailoring Rule that EPA will complete a study by the end of April 2015 on remaining GHG permitting burdens that would exist if EPA applied permitting requirements to smaller sources. EPA states that it will complete a rule by April 30, 2016, further addressing permitting for these facilities. EPA may decide that successful streamlining will allow the phase-in of more sources. EPA may also decide that certain smaller sources need to be permanently excluded from GHG permitting.

This rule making amends the state's Title V and PSD air quality rules for GHG emission regulation so that the state rules match the federal Tailoring Rule (see references to the corresponding federal amendments in the item statements below).

Items 1 and 2 amend the definitions applicable to the Title V Operating Permit (Title V) program. In combination, these two amendments codify the limited conditions under which greenhouse gases are subject to Title V regulation.

Title V requires that an affected facility obtain a Title V operating permit. The Title V operating permit, which is renewed every five years, contains all air emission control requirements that apply to the facility, including the requirements established through construction permitting.

**Item 1** amends the definition of "major source" in rule 567—22.100(455B) to add the Title V term "subject to regulation." This change is identical to the amended definition in the final federal Tailoring Rule (see 40 Code of Federal Regulations (CFR) 70.2, definition of "major source," as amended on June 3, 2010).

**Item 2** amends rule 567—22.100(455B) to add the definition of "subject to regulation." The definition includes definitions for "greenhouse gases (GHGs)" and "tpy CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e)" and further specifies the Title V applicability criteria for stationary sources of GHG emissions. The definition matches the new federal definition in the Tailoring Rule (see 40 CFR 70.2, definition of "subject to regulation," as amended on June 3, 2010).

Beginning January 2, 2011, power plants, industrial facilities, ethanol plants, state universities, municipal utilities, and other facilities in Iowa that are already considered major sources under the Title V program will be affected under the amendments.

The approximately 280 facilities that are currently subject to the Title V program have already been required to report GHG emissions under Iowa statutes and administrative rules. As these facilities

apply for, renew or modify their Title V permits, they must address GHG requirements, such as calculating and reporting GHG emissions using the CO<sub>2</sub>e methodology, and any other applicable requirements.

Beginning on July 1, 2011, additional sources of GHG emissions, such as ethanol plants, municipal utilities, some hospitals, and some larger landfills, will be classified as major sources under Title V.

The Department estimates that 65 additional facilities will become subject to Title V on July 1, 2011. These facilities will need to apply for a Title V permit by July 1, 2012. However, it is expected that at least one third of these 65 newly affected facilities (over 20 facilities) may already have, or may be able to take, enforceable limits in construction permits, such as limits on hours of operation or limits on production throughput, that would potentially reduce GHG emissions below the applicable Title V thresholds.

The amendments do not make any changes to the rules for Title V fees. At this time, owners or operators of Title V facilities are not required to include GHG emissions in calculating their Title V fee payments.

The Department received several comments regarding Title V fees. In general, the comments stated that the amendments as proposed in the Notice were not clear on whether Title V fees would be assessed on greenhouse gas emissions and that the Department should revise the final rules to clarify that greenhouse emissions are not included in Title V fee calculations.

These comments are addressed in detail in the public responsiveness summary. In summary, if the Department were to amend the definitions as suggested by the commenters, this would result in state regulations that do not match federal regulations and could result in EPA's disapproval of Iowa's implementation of the federal regulations.

EPA's preamble to the final, federal Tailoring Rule states that EPA is not addressing Title V fees for greenhouse gas emissions at this time. However, EPA recommends "that each program review its resource needs for GHG-emitting sources and determine if the existing fee approach will be adequate."

EPA's recommendation is in keeping with the Department's annual process for establishing the Air Quality Bureau budget and for setting the Title V fee. As part of this annual process, the Department holds several meetings for Title V fee payers and other stakeholders to discuss the budget and Title V fees. In addition to reviewing and discussing the reasonable costs to administer the Title V program, mechanisms for funding the air quality program are discussed each year, such as a fee for construction permits. The Department will continue to undertake a transparent and public process for developing the air quality budget and Title V fees.

Items 3 and 4 amend the definitions applicable to the PSD program. In combination, these two amendments codify the limited conditions under which greenhouse gases are subject to PSD program regulation.

New source review (NSR) is a federal term for review and preconstruction permitting of new or modified stationary sources of air pollution. The PSD program is a component of NSR that includes procedures to ensure that air quality standards are maintained. In general, the PSD program requires that an affected facility obtain a PSD permit specifying how the facility will control emissions. The permit requires the facility to apply Best Available Control Technology (BACT), which is determined on a case-by-case basis taking into account, among other factors, the cost and effectiveness of the control.

**Item 3** amends subrule 33.3(1) to revise the definition of “regulated NSR pollutant” to clarify that the term “subject to regulation” is now specifically defined for the PSD program. Additionally, language is moved from paragraph “4” to new paragraph “5.” This change matches the amended definition in the final federal Tailoring Rule (see 40 CFR 52.21(b)(50)(iv) and 52.21(b)(50)(v), as amended on June 3, 2010).

**Item 4** amends subrule 33.3(1) to add the definition of “subject to regulation” for the PSD program. The definition matches the final federal definition in the Tailoring Rule (see 40 CFR 52.21(b)(49), as amended on June 3, 2010). The definition includes definitions for “greenhouse gases (GHGs)” and “tpy CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e)” and also specifies the methodology for calculating an emissions increase for GHGs, the applicable thresholds for GHG emissions, and the schedule indicating when the applicability thresholds take effect.

Starting January 2, 2011, facilities already subject to PSD and that also meet the threshold levels for GHG emissions will be impacted. A facility will be subject to PSD permitting requirements if the facility is a new major stationary source for a regulated NSR pollutant that is not a GHG and also will emit or has the potential to emit 75,000 tpy CO<sub>2</sub>e; or if the facility is an existing major stationary source for a regulated NSR pollutant that is not a GHG, will have an emissions increase of a regulated NSR pollutant, and will have an emissions increase of 75,000 tpy CO<sub>2</sub>e.

In any given year, the Department receives approximately 5 to 20 PSD project applications. The specific nature of the project will determine if it is subject to PSD requirements for GHGs. The Department expects very few projects to be affected by the new threshold levels for GHG emissions during this first phase.

Beginning July 1, 2011, a facility will be subject to PSD permitting requirements if the facility is a new stationary source that will emit or has the potential to emit 100,000 tpy CO<sub>2</sub>e; or if the facility is an existing stationary source that emits or has the potential to emit 100,000 tpy CO<sub>2</sub>e and when such stationary source undertakes a physical change or a change in the method of operation that will result in an emissions increase of 75,000 tpy CO<sub>2</sub>e or more.

As noted above, the Department receives approximately 5 to 20 PSD project applications each year. The specific nature of the project will determine if it is subject to PSD requirements for GHGs. Additionally, the Department expects that many new or existing facilities may already have, or may be able to take, enforceable limits in construction permits, such as limits on hours of operation or limits on production throughput, that would potentially reduce GHG emissions below the applicable PSD thresholds.

The Department received several comments regarding the PSD program requirements for BACT for greenhouse gases. The commenters expressed concern that EPA had not yet issued BACT guidance for greenhouse gases. The commenters recommended that establishing BACT standards or guidance should be a high priority for the Department and that stakeholders should be included in the BACT guidance development.

These comments are addressed in detail in the public responsiveness summary. In summary, EPA’s BACT guidance for GHG emissions is meant to assist state agencies in their BACT determinations. The newly issued GHG BACT guidance will serve as additional guidance for already-established PSD regulations and guidance. Using EPA’s guidance will help to ensure national consistency in BACT determinations. As in the past, the Department will establish BACT on a case-by-case basis for each individual PSD project. The Department is confident that it will be able to work with each affected facility to establish BACT for GHG emissions.

Several commenters recommended that the Department place a provision in the Adopted and Filed rules to allow for automatic nullification or rescission if the federal Tailoring Rule were to be vacated. These comments are addressed in detail in the public responsiveness summary.

In summary, the Department's response to these comments is as follows:

The Iowa Administrative Procedure Act, Iowa Code chapter 17A, specifies how state agencies, including the Department, must undertake rule makings. An important component of the required procedures includes public notice and opportunity for public participation. This opportunity for public involvement would be circumvented with an automatic rescission/nullification provision in the final rules and would be in violation of the Iowa Code requirements.

Additionally, Iowa Code section 455B.133 establishes the Environmental Protection Commission, the decision-making body for the Department of Natural Resources, Environmental Services Division.

The Commission's authority and additional public input would be eliminated if the final rules provided for automatic rescission or nullification. Further, Iowa Code chapter 17A provides for General Assembly review of all rule makings by the Administrative Rules Review Committee (ARRC). ARRC's review would also be removed from the rule-making process by including an automatic rescission/nullification provision.

The Department cannot reasonably anticipate all possible federal actions related to greenhouse gases and how these actions would affect the federal Tailoring Rule. It would be nearly impossible and highly impractical for the Department to describe each possible federal action in the final rules and further describe the corresponding effect to the state rules. Attempting to do so would likely provide even more regulatory uncertainty for the Department and for regulated entities.

The Iowa Administrative Procedure Act, Iowa Code chapter 17A, provides several remedies in the event of legal or other federal actions to the federal Tailoring Rule or to related federal greenhouse gas provisions. Iowa Code chapter 17A sets forth specific provisions under which a state agency may conduct "emergency" rule making. The Department believes that a full or partial vacatur of the federal Tailoring Rule regulations would certainly meet the requirements for "emergency" rule making. The options allowed under "emergency" rule making would significantly shorten the rule-making schedule and allow the Department to react to the changes in federal regulations relatively quickly. Additionally, Iowa Code chapter 17A states that "An interested person may petition an agency requesting the adoption, amendment or repeal of a rule." This provision would allow a concerned party to implore the Department to undertake rule making if the federal Tailoring Rule or other related federal greenhouse gas regulation is repealed.

The Department may also choose to grant waivers or variances of the state's adoption of vacated federal regulations.

Several commenters recommended that the Department suspend finalizing the air quality amendments until the numerous legal challenges to the Tailoring Rule and other federal actions related to greenhouse gases and the Tailoring Rule are completed.

These comments are addressed in detail in the public responsiveness summary. In summary, it is not uncommon that EPA regulations are challenged through administrative or legal means. While some challenges are upheld by the courts, resulting in a remand or stay of the federal regulations, some EPA regulations are also upheld by the courts. Many of these legal challenges take years to resolve. Consequently, the Department cannot wait to undertake rule makings until the appeals to federal regulations run their course. Iowa's EPA-approved State Implementation Plan (SIP) and Iowa

statute obligate the Department to ensure that the Clean Air Act is implemented and that citizens have air quality that is protected and maintained to the greatest extent possible.

Without these amendments, GHG emission sources would be subject to the current Title V and PSD applicability thresholds of 100 tpy and 250 tpy, which the Department estimates would subject 61,000 facilities in Iowa to Title V permitting and 410 facilities to PSD permitting.

As with other federal air quality regulations, EPA may exercise its federal authority over states that do not implement federal air quality regulations. EPA indicates that it plans to take immediate action in states that fail to apply the GHG thresholds in the Tailoring Rule to the states' Title V and PSD programs by January 2, 2011. To avoid these consequences, the Department is proceeding with the rule making so that the adopted amendments will be in effect prior to January 2, 2011, and Iowa may continue to manage the PSD and Title V programs under state authority.

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

These amendments will become effective on December 22, 2010.

EDITOR'S NOTE: Pursuant to recommendation of the Administrative Rules Review Committee published in the Iowa Administrative Bulletin, September 10, 1986, the text of these amendments [22.100, 33.3(1)] is being omitted. These amendments are identical to those published under Notice as **ARC 8999B**, IAB 8/11/10.

**DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION COMMISSION  
ATTORNEY GENERAL REFERRALS  
June, 2011**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
Affordable Housing Network, Inc. Cedar Rapids (1)	Air Quality	Asbestos -	Referred to Attorney General	Referred	3/15/11
Bachman, Lane Lake City (3)	Animal Feeding Operation	Failure to Update Plan	Order/Penalty	Referred Petitioner Filed Trial Date	8/17/10 12/23/10 10/28/11
Branstad, Monroe Hancock Co. (2)	Animal Feeding Operation		Referred to Attorney General	Referred	7/20/10
Brush & Weed Control Specialists, Inc.; New Farmers Drainage District Monona Co. (4)	Wastewater	Fish Restitution Claim; Water Pollution Penalty	Judicial Review	Petition for Judicial Review State's Answer Petitioner's Brief State's Brief Petitioner's Reply Hearing Regarding Remand State's Brief in Resistance to Supplemental Brief Ruling Remanding to Agency	7/02/10 7/26/10 10/05/10 11/04/10 11/16/10 1/20/11 3/09/11 4/14/11
Callaway Farms, Inc.; Eugene Callaway; Blake Callaway, Sr. Radcliffe (2)	Animal Feeding Operation	Prohibited Discharge	Referred to Attorney General	Referred Petition Filed	4/20/10 12/30/10
Chamness Technology, Inc. Eddyville (6)	Solid Waste	Unauthorized Discharge	Referred to Attorney General	Referred	11/16/10
General Development LC Palo Alto Co. (3)	Animal Feeding Operation	Failure to Submit Update, Fees	Referred to Attorney General	Referred Petition Filed State's Resistance to Jury Demand Defendant's Reply to Resistance State's Brief in Resistance Hearing on Jury Demand Ruling Denying Jury Demand Trial Date	8/18/09 2/03/10 6/25/10 7/12/10 7/19/10 9/10/10 11/19/10 9/14/11
Grain Processing Corporation Muscatine (6)	Air Quality Wastewater	Operation Without (PSD) Permit; Emission Standards – Particulate; Failure to Comply - MON; Construction Without WW Permit	Referred to Attorney General	Referred	4/19/11
Haverhals, Peter; Haverhals Farms, Inc. Hawarden (3)	Animal Feeding Operation	Prohibited Discharge – Open Feedlot; Water Quality Violations – General Criteria	Referred to Attorney General	Referred	8/17/10

**DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION COMMISSION  
ATTORNEY GENERAL REFERRALS  
June, 2011**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
Iowa Farm Bureau Federation et. al. Polk Co. (5) <b>UPDATED</b>	Wastewater	Judicial Review of Antidegradation Rules	Attorney General	Petition Filed	10/04/10
				State's Answer	10/27/10
				Motion to Intervene by Sierra Club	11/03/10
				Motion to Intervene by Iowa Environmental Council and Environmental Law & Policy Center	12/15/10
				Hearing on Intervention	1/20/11
				Ruling Granting Intervention	2/03/11
				State's Motion for Summary Judgment; Undisputed Facts; Affidavits; Appendix and Memorandum	4/29/11
K & L Landscape & Construction, Inc. Pottawattamie Co. (4)	Solid Waste; Hazardous Condition	Illegal Disposal; Failure to Notify	Referred to Attorney General	Referred	2/16/10
				Petition Filed	10/13/10
				Trial Date	10/11/11
				Order Granting Intervention by Harveys Iowa	4/18/11
Klyn, Edward Dale Corydon (5)	Animal Feeding Operation	Prohibited Discharge – Open Feedlot	Order/Penalty	Referred Petition Filed	2/16/10 1/10/11
Knudsen, Anders St. Ansgar (2)	Animal Feeding Operation	Prohibited Discharge	Referred to Attorney General	Referred Criminal Charges Filed	4/20/10 9/27/10
Kollasch Land and Livestock, Inc. Whittemore (2) (3) <b>UPDATED</b>	Animal Feeding Operation	Failure to Submit Update, Fees	Referred to Attorney General	Referred	8/18/09
				Petition Filed	2/03/10
				State's Resistance to Jury Demand	6//25/10
				Defendant's Reply to Resistance	7/12/10
				State's Brief in Resistance	7/19/10
				Hearing on Jury Demand	9/10/10
				Ruling Denying Jury Demand	11/19/10
				Trial Date	9/14/11
Organic Technologies; Tim Danley; Ken Renfrow; Mike Danley Warren Co. (5)	Solid Waste	Permit Violations	Referred to Attorney General	Referred	12/15/97
				Petition Filed	10/02/98
				Application for Temporary Injunction	2/04/99
				Temporary Injunction	4/19/99
				Trial Date	9/13/00
				Partial Judgment (Clean-up Order)	9/28/00
				Contempt Application	12/12/02
				Contempt Hearing Date	2/20/03
				Contempt Finding and Civil Penalty (\$100,000 and 30 Days in Jail – Suspended until 7/8/03)	2/20/03
				Hearing Regarding Contempt	7/09/03
				Order Regarding Bond/Cleanup Deadline	8/01/03
				Bond Posted	8/01/03
				State Objections to Bond	8/20/03
				Ruling Denying Objections to Bond	9/18/03

**DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION COMMISSION  
ATTORNEY GENERAL REFERRALS  
June, 2011**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
				<b>CONTINUED</b>	
				Status Hearing Date	4/16/04
				Hearing on Motion to Extend Cleanup Deadline	12/10/04
				Order Reinstating \$100,000 Civil Penalty	1/05/05
				Site Clean-up Completed	8/15/06
Passehl, Jerry Latimer (2)	Solid Waste; Wastewater; Hazardous Condition	Illegal Disposal; Operation Without Permit; Pollution Prevention Plan Violations; Failure to Notify	Order/Penalty	Referred Petition Filed Trial Date	3/16/10 12/27/10 12/15/11
Pieper, Inc.; Mike Pieper Lee Co. (6)	Animal Feeding Operation	Prohibited Discharge; Water Quality Violations – General Criteria; Improper Land Application; Uncertified Applicators	Referred to Attorney General	Referred Petition Filed State’s Resistance to Jury Demand Defendant’s Reply to Resistance Hearing on Jury Demand Order Granting Jury Demand Ruling Granting Jury Demand Trial Date	8/18/09 5/17/10 6/08/10 6/14/10 7/27/10 7/27/10 8/06/10 8/08/11
Renken, Rick LeMars (3)	Animal Feeding Operation	Failure to Update Plan	Order/Penalty	Referred Petition Filed	4/20/10 1/07/11
Sebergan Pigs, Inc. West Point (6)	Animal Feeding Operation	Failure to Update Plan; Recordkeeping; Prohibited Discharge – Confinement; General Criteria	Referred to Attorney General	Referred Petition Filed	3/16/10 12/30/10
Sharkey, Dennis Dubuque Co. (1)	Air Quality Solid Waste	Open Burning; Illegal Disposal	Referred to Attorney General	Referred Petition Filed Defendant’s Jury Demand State’s Resistance to Jury Demand Amendment Resistance to Jury Demand Ruling Denying Jury Demand Trial Date	4/03/07 9/20/07 9/13/10 9/20/10 10/04/10 11/19/10 5/24/11
Sioux Pharm, Inc. Sioux County (3)	Wastewater	Operational Violations	Referred to Attorney General	Referred Petition Filed Trial Date	3/11/08 3/09/09 8/24/11
Ward, Randy Iowa City (6)	Air Quality	Asbestos	Referred to Attorney General	Referred Criminal Charges Filed	8/18/09 12/28/10

**DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION COMMISSION  
ATTORNEY GENERAL REFERRALS  
June, 2011**

Name, Location and Region Number	Program	Alleged Violation	DNR Action	New or Updated Status	Date
Yentes, Clifford Council Bluffs (4)	Solid Waste	Illegal Disposal	Referred to Attorney General	Referred	4/03/07
				Petition Filed	9/21/07
				Contempt Application Filed	9/21/07
				Contempt Hearing	11/05/07
				Ruling on Contempt Application	11/29/07
				(90 days jail suspended/\$500 fine)	2/18/08
				Compliance Hearing	4/27/08
				Compliance Hearing	5/28/08
				Compliance Hearing Date	6/30/08
				Compliance Hearing	8/04/08
				Compliance Hearing Date	9/08/08
				Compliance Hearing Date	12/05/08
				Trial Date	8/16/11



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

During the period April 1, 2011, through April 30, 2011, 8 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	2011	5	1	0	1	0	0	5	1	0	0	0	0	4	0	0	1	1	0	0	0
Feb	2011	1	3	0	0	0	0	1	1	0	0	0	2	1	1	0	0	0	2	0	0
Mar	2011	2	5	1	2	1	0	1	4	0	0	0	1	0	4	1	1	1	0	0	0
Apr	2011	8	7	0	0	0	1	5	2	1	0	2	4	7	5	1	2	0	0	0	0
<b>Total</b>		<b>16</b>	<b>16</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>12</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>12</b>	<b>10</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>

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										
<b>Total</b>	1	1	2	5	2	1	2	0	0	0	1	0



**Iowa Department of Natural Resources**  
**Environmental Services Division**  
**Report of Hazardous Conditions**

During the period April 1, 2011, through April 30, 2011, 71 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	2011	53	52	6	0	32	36	15	16	11	16	35	34	1	0	4	3	1	0	1	2
Feb	2011	61	43	5	0	34	29	22	14	12	14	46	22	0	5	0	1	0	0	4	2
Mar	2011	70	66	6	3	48	49	16	14	8	14	57	46	0	4	5	1	1	1	1	5
Apr	2011	71	85	14	4	40	46	17	35	16	33	46	60	0	3	2	2	1	0	6	8
<b>Total</b>		<b>255</b>	<b>246</b>	<b>31</b>	<b>7</b>	<b>154</b>	<b>160</b>	<b>70</b>	<b>79</b>	<b>47</b>	<b>77</b>	<b>184</b>	<b>162</b>	<b>1</b>	<b>12</b>	<b>11</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>12</b>	<b>17</b>

\*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										
<b>Total</b>	10	17	15	21	11	12	12	19	16	19	6	18

# Environmental Services Division Variance Report

5/25/2011

<b>Monthly Variance Report</b> April, 2011						
Item No.	Facility/City	Program	DNR Reviewer	Subject	Decision	Date
1	Linwood Mining & Minerals	Air Quality	Reid Bermel	Variance to replace & operate a drag conveyor before obtaining a modified construction.	4/5/2011	Approved
2	Madison Co Health Care System	Air Quality	Dennis Thielen	Variance to install & operate a replacement backup generator.	4/5/2011	Approved
3	US Army Corps of Engineers	Wastewater	James Sievers	Variance request permission to discharge wastewater from a 3-cell wastewater lagoon.	4/14/2011	Approved
4	Golf Side Grill	Water Supply	Bob Campbell	Variance for well separation & use of non-ASME pressure tanks.	4/18/2011	Approved
5	Grain Processing Corporation	Air Quality	Dennis Thielen	Variance to operate #1-3 Dryer Scrubbers with caustic added to the scrubber medium.	4/18/2011	Approved
6	Grand Ave Bridge replacement Channel Grading & Bank Stabilization	Flood Plain	Kelly Stone	Variance from the freeboard criterion and the separation distances.	4/19/2011	Approved
7	CPR Bridge 194.75	Flood Plain	Karen Smith	Variance to the freeboard criterion.	4/19/2011	Approved
8	Gowrie Municipal Utilities	Air Quality	Bryan Bunton	Variance request to initiate construction.	4/20/2011	Approved
9	Iowa Prison Industries	Air Quality	Dennis Thielen	Variance request to operate paint booth.	4/27/2011	Approved

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

During the period April 1, 2011 through April 30, 2011, 6 reports of wastewater by-passes were received. A general summary and count by field office is presented below. This does not include by-passes resulting from precipitation events.

<b>Month</b>	<b>Total</b>	<b>Avg. Length (days)</b>	<b>Avg. Volume (MGD)</b>	<b>Sampling Required</b>	<b>Fish Kill</b>
January '11	6(8)	0.741	0.109	1	0(0)
February '11	6(6)	0.354	0.065	2	0(0)
March '11	9(20)	0.167	0.032	5	0(0)
April '11	6(20)	1.118	0.038	3	0(0)
May '10	12(9)	0.257	0.049	2	0(0)
June '10	8(12)	0.580	0.204	3	0(0)
July '10	12(6)	0.174	0.031	2	0(0)
August '10	9(6)	0.405	0.161	4	0(0)
September '10	7(4)	0.149	0.028	1	0(0)
October '10	7(6)	0.238	0.001	0	0(0)
November '10	1(6)	0.167	0.000*	0	0(0)
December '10	6(6)	0.859	0.225	5	0(0)

(numbers in parentheses are for same period last year)  
\*Volume for the November, 2010 event was 240 gallons

Total Number of Incidents Per Field Office This Period:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
2	0	0	1	3	0

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

June, 2011

<b>DATE RECEIVED</b>	<b>NAME OF CASE</b>	<b>F.O.</b>	<b>ACTION APPEALED</b>	<b>PROGRAM</b>	<b>ASSIGNED TO</b>	<b>STATUS</b>
11/27/01	Dallas County Care Facility	5	Order/Penalty	WW	Hansen	10/03 – Letter to County attorney regarding appeal resolution. 1/04 – Letter to attorney regarding appeal. 4/04 – Dept. letter to attorney regarding appeal. 9/04 – Dept. letter to attorney regarding appeal. 6/26/07 – Appeal resolved. Facility connected to City WWTF. Consent order to be issued.
4/08/04	Silver Creek Feeders	4	Permit Conditions	AFO	Clark	2/9/11 – Met with Silver Creek’s attorney. Agreed have a meeting with Silver Creek officials, DNR staff and attorneys.
9/25/07	Winneshiek County Conservation Board (Kendallville Park)	1	Permit Revision	WS	Hansen	Negotiating before filing.
7/22/08	Nichols Aluminum	6	Permit Conditions	AQ	Preziosi	Settlement discussions ongoing. Last communication 8/28/10. Last communication 11/24/10.
10/01/08	Green Brier Subdivision	1	Permit Conditions	WS	Hansen	Negotiating before filing.
10/15/08	SSAB Iowa Inc.	6	Permit Conditions	AQ	Preziosi	Settlement discussions ongoing. Last discussion 4/14/11.
11/15/08	SSAB Iowa Inc.	6	Permit Conditions	AQ	Preziosi	Settlement discussions ongoing. Last discussion 4/14/11.
1/05/09	River Highlands Homeowner’s Association	6	Order/Penalty	WS	Hansen	<b>10/09- WS in partial compliance with order after repair to well in 9/09. 5/11 – Now in compliance with order. Settlement offer to River Highlands.</b>
5/29/09	Exide Technologies	1	NPDES Permit	WW	Tack	Negotiating before filing.
6/29/09	ADM (Permit 09-A-170-P)	6	Permit Condition	AQ	Preziosi	Negotiating before filing.
<b>7/10/09</b>	<b>The Eastern Iowa Airport</b>	<b>1</b>	<b>NPDES Permit</b>	<b>WW</b>	<b>Hansen</b>	<b>Sent to DIA. Hearing set for 12/13/10. Hearing continued to 6/27/11. Settled. Revised permit to be issued.</b>
8/17/09	Phoenix C & D Recycling, Inc.	5	Permit Revocation	SW	Tack	Proposed Decision issued 5/21/2010. DNR permit revocation upheld. EPC appeal pending.
9/29/09	Iowa Acquisitions, LLC	2	Order/Penalty	SW	Tack	Clean-up underway.
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.
12/02/09	Table Mound MHP	1	Order/Penalty	WW	Hansen	Negotiating before filing.
12/16/09	Guy Thomas	4	Order/Penalty	UT	Brees	Oral agreement for tank removal prior to

\* These cases were previously assigned to Mike Murphy.

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

June, 2011

<b>DATE RECEIVED</b>	<b>NAME OF CASE</b>	<b>F.O.</b>	<b>ACTION APPEALED</b>	<b>PROGRAM</b>	<b>ASSIGNED TO</b>	<b>STATUS</b>
						April 1, 2010. Continued negotiation on final settlement.
2/25/10	Higman Sand & Gravel Inc.	3	Order/Penalty	FP	Clark	Negotiating before filing.
3/08/10	Olson Farm, Inc.		Permit Conditions	AFO	Clark	Negotiating before filing.
3/11/10	Bondurant, City of	5	Order/Penalty	WW	Hansen	Negotiating before filing.
5/05/10	Jeff Grooms; Floris One Stop	6	Order/Penalty	UT	Mullen	New consent order issued. Appeal will be dismissed. Awaiting penalty payment.
5/25/10	CBJ Transport, LLC	2	Order/Penalty	AFO	Book	Met with company 1/13/11, negotiations continue.
6/01/10	Kyle Pattison Tire Company, LLC	1	Permit Renewal Denial	SW	Tack	Negotiating before filing.
6/24/10	Raccoon River Bible Camp	4	Variance Denial	WS	Hansen	Negotiating before filing.
8/06/10	West Kimberly MHP; Kendall and Beatrice Miller	3	Order/Penalty	WW	Hansen	Negotiating before filing.
8/25/10	James Bailey; James D. Bailey Construction	6	Order/Penalty	AQ/SW	Book	DIA hearing held 11/10/10. Decision affirmed, penalty now due. Mr. Bailey has been turned over to Revenue and Finance to initiate a collections action.
8/31/10	Louis Dreyfus Commodities	4	Permit Conditions	AQ	Preziosi	Negotiating before filing.
9/29/10	Bryant's Mobile Home Park	6	Order/Penalty	WW	Hansen	Negotiating before filing. 03/11 - Permit application received from MHP.
9/30/10	Ames, City of	5	Permit Conditions	WW	Tack	Hearing continued. Negotiations underway.
10/15/10	Helen and Virgil Homer dba Grandmas Snack Shop; Preston White	2	Order/Penalty	WS	Hansen	<b>5/11 – Settled. Consent Amendment to AO to be issued.</b>
11/3/2010	Wendall Abkes	2	Order/Penalty	SW	Schoenebaum	Negotiating before filing.
11/5/2010	Flying Eagle, Inc. Will R. Ibeling	2	Order/Penalty	AFO	Schoenebaum	<b>Hearing held 2/22/11. Decision received 5/16/11. Order affirmed and modified penalty to \$4,800.</b>
11/12/10	Twin Valley Lakes Improvement Association	6	Permit Revisions	WS	Hansen	Negotiating before filing.
12/14/10	Chickasaw County Conservation Board; Twin Ponds West	1	Permit Appeal	WS	Hansen	Negotiating before filing.
12/28/10	Oak Grove Church	1	Permit Conditions	WS	Hansen	<b>Negotiating before filing. 5/11/ - To be set for hearing.</b>

\* These cases were previously assigned to Mike Murphy.

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

June, 2011

<b>DATE RECEIVED</b>	<b>NAME OF CASE</b>	<b>F.O.</b>	<b>ACTION APPEALED</b>	<b>PROGRAM</b>	<b>ASSIGNED TO</b>	<b>STATUS</b>
12/29/10	Griffin Pipe Products Co., Inc.	4	Permit Conditions	AQ	Preziosi	Negotiating before filing.
1/31/11	Griffin Pipe products Co., Inc.	4	Tax Certification Request	AQ	Preziosi	Negotiating before filing.
2/15/11	June Oyer; Parsons Diehl, LLC; Plantation Village MHP	6	Order/Penalty	WW	Hansen	Negotiating before filing.
2/28/11	Manson, City of	3	Order/Penalty	WS	Hansen	<b>Negotiating before filing. 4/1/11 – Settlement conference held with City.</b>
3/03/11	Keith Durand		Order/Penalty	WW	Tack	To be set for hearing.
5/02/11	Iowa Limestone Company	2	Order/Penalty	AQ	Preziosi	Negotiating before filing.
5/09/11	S & R One, Inc.	6	Order/Penalty	UT	Brees	Negotiating before filing.

\* These cases were previously assigned to Mike Murphy.

**DATE:** June, 2011

**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
Keith Kooi d/b/a Kooi Honeywagon & Equipment Rental Sioux Co. (3)	Animal Feeding Operation	Uncertified Applicator	Consent Order \$3,500	4/25/11
Kum & Go, L.C. Nevada (5)	Underground Tank	Leak Detection; Failure to Notify	Consent Order \$10,000	4/28/11
Cyclone Cattle, L.L.C. Pottawattamie Co. (4)	Animal Feeding Operation	Prohibited Discharge –Open Feedlot; Operational Violations	Consent Order \$1,500 \$2,000 SEP	4/29/11
Brooklyn Elevator, Inc. Poweshiek/Iowa Co. (6)	Air Quality Solid Waste	Open Burning; Asbestos; Illegal Disposal	Consent Order \$4,000	4/29/11
Muscatine Used Parts, Inc. Muscatine Co. (6)	Air Quality Solid Waste Wastewater	Open Burning; Illegal Disposal; Pollution Prevention Plan Violation	Consent Order \$5,000	5/05/11
Iowa County Sanitary Landfill Iowa Co. (6)	Wastewater	Compliance Schedule	Consent Order	5/18/11
Sleepy Hollow Campground & RV Park Oxford (6)	Drinking Water	MCL – Bacteria, Radioactivity	Consent Order	5/19/11
Titan Machinery, Inc. Pottawattamie Co. (4)	Air Quality Solid Waste	Open Burning; Illegal Disposal	Consent Order \$3,500	5/19/11
Lyle Schroeder Sioux Co. (3)	Air Quality	Open Burning	Consent Order \$500	5/23/11
Simon Fitzpatrick Harrison Co. (4)	Solid Waste	Illegal Disposal	Consent Order \$10,000	5/23/11
Shane Rechkemmer Fayette Co. (1)	Solid Waste	Illegal Disposal	Order/Penalty \$1,000	5/24/11
Ben McKinney Franklin Co. (2)	Animal Feeding Operation	Uncertified Applicator	Consent Order \$2,000	5/24/11

IOWA DEPARTMENT OF NATURAL RESOURCES  
 ENVIRONMENTAL PROTECTION COMMISSION  
 RULEMAKING STATUS REPORT  
 June, 2011

PROPOSAL	SENT FOR GOVERNOR'S PRE-APPROVAL (JOB IMPACT STATEMENT)	NOTICE TO EPC	NOTICE PUBLISHED	ARC#	ARRC MTG.	HEARING	COMMENT PERIOD	FINAL SUMMARY TO EPC	RULES ADOPTED	RULES PUBLISHED	ARC#	ARRC MTG.	RULE EFFECTIVE
1. Ch. 22 – AQ Title V Fee Cap		1/18/11	2/09/11	9366B	3/11/11	3/11/11	3/11/11	*7/12/11	*7/12/11	*8/10/11		*9/06/11	*9/14/11
2. Ch. 48 – NEW – <u>GHEX Closed Loop Ground Heat Exchangers</u> ; Ch. 38; Ch. 39; Ch. 49; Ch. 82		2/15/11	3/09/11	9425B	*4/05/11	4/4-7, 11, 12/11	4/12/11	*7/12/11	*7/12/11	*8/10/11		*9/06/11	*9/14/11
3. Ch. 61 – WQ Standards, Section 401 Certification of Section 404 Regional Permits 27, 33 and 34		9/21/10	10/20/10	9153B	11/09/10	11/09/10	11/12/10	12/21/10	12/21/10	1/12/11	9330B	2/11/11	Delayed 70 Days/ ARRC 2/16/11
4. Ch. 61 – Nutrient WQ Standards for Lakes to Support Recreational Use		1/18/11	2/23/11	9371B	3/11/11	3/23/11	3/15/11	*7/12/11	*7/12/11	*8/10/11		*9/06/11	*9/14/11
5. Ch. 64 – WW Construction and Operation Permits		1/18/11	2/09/11	9364B	3/11/11	3/08/11	3/16/11	5/17/11	5/17/11	*6/15/11	9553B	*7/05/11	*7/20/11
6. Ch. 65 – Animal Feeding Operations; Confinement NPDES		11/16/10	12/15/10	9274B	1/04/11	1/04-06, 10, 11/11	1/11/11	TERMINATE 6/21/11	*6/21/11	*7/13/11		*8/02/11	*8/17/11

\* Projected timeline. Due to the requirement for Governor pre-approval/job impact statement of agency rule making, we can only project the timeline for the rulemaking process. Updates will be made and timelines adjusted as the rule making process moves forward.

IOWA DEPARTMENT OF NATURAL RESOURCES  
COMPLIANCE AND ENFORCEMENT BUREAU

**DATE:** June 1, 2011  
**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	4,778	3-15-96
Greg Morton; Brenda Hornyak (Decatur Co.)	SW/AQ/WW	3,000	11-04-98
Ray Stamper; Bryan Zenor (Polk Co.)	SW	2,000	12-12-98
Otter Creek Station (Dubuque Co.)	WS	325	3-04-99
R & R Ranch (Osceola)	WW	10,000	8-30-00
James Harter (Fairfield)	WW	1,483	8-01-01
Wisconsin North dba National Petroleum, Inc. (Clinton)	UT	5,000	8-04-01
# Troy DeGroote; Casey DeGroote (Butler Co.)	AFO/AQ/SW	108	3-08-02
# Practical Pig Corporation (Clinton Co.)	AFO	2,000	5-26-02
Mobile World, L.C. (Camanche)	WW	2,000	5-27-02
M-F Real Estate; Fred "Butch" Levell (Carter Lake)	HC	1,701	8-18-02
Midway Oil Co.; David Requet (Davenport)	UT	5,355	9-20-02
Dale Schaffer (Union Co.)	AQ/SW	10,000	11-05-02
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	9,000	9-26-03
Mark Anderson (Des Moines Co.)	AQ/SW	6,188	3-22-04
Mike Messerschmidt (Martinsburg)	AQ/SW	500	4-13-04
Interchange Service Co., Inc., et.al. (Onawa)	WW	6,000	5-07-04
Emer Carlson (Fairfield)	AQ	232	6-01-04
Iowa Falls Evangelical Free Church (Iowa Falls)	WS	750	6-13-04
Mitchell Town Pump (Mitchell)	WS	2,080	6-16-04
# Dunphy Poultry (Union Co.)	AFO	1,500	6-27-04
Ranch Supper Club (Swisher)	WS	300	8-02-04
# Cash Brewer (Cherokee Co.)	AFO/SW	10,000	8-25-04
Spillway Supper Club (Harpers Ferry)	WS	1,500	9-06-04
David Niklasen (Shelby Co.)	SW	100	9-11-04
# Doorenbos Poultry; Scott Doorenbos (Sioux Co.)	AFO	1,500	10-09-04
T & T Corner Bar (McIntire)	WS	3,000	10-26-04
Rock N Row Adventures (Eldora)	WS	3,000	10-23-04
Americana Bowl (Ft. Madison)	WS	100	11-28-04
Harold Linnaberry (Clinton Co.)	SW	1,000	5-18-05
Elyer Fry; Allen Fry; Mel Fry; Ron Fry (Moravia)	SW	10,000	6-20-05
# Matt Hoffman (Plymouth Co.)	AFO	750	8-08-05
Vernon Kinsinger (Washington Co)	SW	3,930	12-31-05
# Joel McNeill (Kossuth Co.)	AFO	2,500	1 21-06
Affordable Asbestos Removal, Inc. (Monticello)	AQ	7,000	4-28-06

#Animal Feeding Operation

**BOLD Entries Have Been Referred to DRF**

# Mike Elsbernd (Winneshiek Co.)	AFO	3,000	6-29-06
# Troy VanBeek (Lyon Co.)	AFO	3,500	10-16-06
<b>Larry Bergen (Worth Co.)</b>	<b>AQ/SW</b>	<b>257</b>	<b>11-01-06</b>
Mobile World, LC; R. Victor Hanks (Clinton Co.)	WW	22,500	4-01-07
James L. Heal; A-1 Imports (Homestead)	WW/SW	10,000	7-18-07
# Doug Orwig Site #1 (Dickinson Co.)	AFO	3,500	10-01-07
<b>Mark Witt; Witt Auto Salvage (Monroe Co.)</b>	<b>SW/WW</b>	<b>8,000</b>	<b>1-15-08</b>
# Joshua Van Der Weide (Lyon Co.)	AFO	3,500	2-25-08
# Edward Dale Klyn (Wayne Co.)	AFO	5,000	6-28-08
<b>Karl Molyneux (What Cheer)</b>	<b>AQ/SW</b>	<b>960</b>	<b>7-19-08</b>
<b>Chad Hoppe; Steve Hoppe; Shady Acres MHP, (Chickasaw Co.)</b>	<b>WW</b>	<b>4,000</b>	<b>8-27-08</b>
<b>Rodney Mandernach; Mandernach Pork (Sac Co.)</b>	<b>AFO</b>	<b>4,000</b>	<b>10-23-08</b>
Kevin & Candace Perry (Shelby Co.)	AQ/SW	10,000	11-07-08
<b>George Kramer (Clinton Co.)</b>	<b>AQ/SW</b>	<b>1,500</b>	<b>11-09-08</b>
Cottonballs, LLC (Winneshiek/Clayton)	AQ/SW	10,000	11-15-08
Mahaska Rural Water System, Inc.; City of Rose Hill	WW	1,000	12-06-08
<b>Jon Knabel (Clinton Co.)</b>	<b>AQ/SW</b>	<b>2,000</b>	<b>12-16-08</b>
<b>Great River L.C.; River Highlands Homeowners Assoc.;</b>	<b>WS</b>	<b>10,000</b>	<b>2-01-09</b>
<b>River Highlands Water System Assoc. (LeClaire)</b>			
<b>Stuart Yoder (Johnson Co.)</b>	<b>AQ/SW</b>	<b>224</b>	<b>2-11-09</b>
<b>Ron and Joanne Kennedy (Council Bluffs)</b>	<b>UT</b>	<b>9,320</b>	<b>2-15-09</b>
# James Boller (Kalona)	AFO	5,000	2-20-09
GPS Properties, LLC; Randhawas Travel Center (Brooklyn)	WW	10,000	3-08-09
Anthony Herman; Mighty Good Used Cars (Polk Co.)	WW	3,000	4-21-09
# <b>Robert Fangmann (Dubuque Co.)</b>	<b>AFO</b>	<b>396</b>	<b>6-01-09</b>
# <b>Rick Renken (LeMars)</b>	<b>AFO</b>	<b>2,042</b>	<b>7-03-09</b>
# <b>Joe Klukow; RK Transport Inc. (Winnebago Co.)</b>	<b>AFO</b>	<b>5,000</b>	<b>7-09-09</b>
# <b>Brian Lill (Sioux Co.)</b>	<b>AFO</b>	<b>3,904</b>	<b>7-18-09</b>
# Wesley Allender (Henry Co.)	AFO	1,500	8-22-09
# Lu-Jen Farms, Inc. (Cedar Co.)	AFO	2,000	8-22-09
Garner, City of	WW	1,500	9-28-09
# <b>Lane Bachman (Calhoun Co.)</b>	<b>AFO</b>	<b>3,885</b>	<b>10-08-09</b>
Thakur, LLC; Relax Inn (Williamsburg)	WS	9,250	10-19-09
<b>Denny Geer (New Market)</b>	<b>SW</b>	<b>9,500</b>	<b>10-31-09</b>
Buff's Iris City Truck Plaza (Mt. Pleasant)	UT	2,000	10-31-09
Dunkerton Cooperative Elevator (Dunkerton)	WW/HC	6,000	11-19-09
# John T. Erpelding (Kossuth Co.)	AFO	1,250	12-01-09
# Roger Langreck (Fayette Co.)	AFO	1,500	12-11-09
Van Bee Pork, LLC (Osceola)	AQ/SW	1,500	1-22-10
# Farmers Co-Operative Society (Sioux Co.)	AFO	3,000	1-22-10
Shrey Petroleum; Palean Oil; Profuel Three (Keokuk)	UT	10,000	3-19-10
Ellis Houk (Adams Co.)	AQ/SW	8,000	2-14-10
# Clinton Reed (Union Co.)	AQ/SW	2,100	3-12-10
# Dwayne Christiansen (Worth Co.)	AFO	1,500	3-16-10
Jeff Larabee; J & J Construction	AQ/SW	2,000	4-23-10
Melvin Wellik; Wellik-DeWitt Implement (Britt)	AQ/SW	3,000	4-08-10
Alchemist USA, LLC; Ravinder Singh (Malcom)	UT	8,260	5-03-10
Randy Logsdon; Bluffton Store (Decorah)	WS	3,000	5-06-10
LJ Unlimited, LLC (Franklin Co.)	AFO/AQ/SW	3,500	5-27-10
Alchemist USA, LLC (Bouton)	UT	10,000	6-19-10
L & D Dry Cleaning and Laundry (Fort Dodge)	AQ	2,019	6-18-10
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
# Richard Winkleman (Kossuth Co.)	AFO	3,000	7-10-10
TC Tiling & Excavating (Wayland)	AQ	3,000	7-13-10

#Animal Feeding Operation

**BOLD Entries Have Been Referred to DRF**

Doeden Farms, Inc. (Lyon Co.)	AFO	9,000	7-23-10
AKD Investments, LLC; H.M. Mart, Inc. (Blue Grass)	UT	6,900	8-06-10
Lonnie Bryant; Sierra Bryant; Bryant's MHP (Keokuk)	WW	2,000	8-15-10
Randy Groff; Virginia Groff (Mitchell Co.)	AQ/SW	1,000	8-15-10
# Derner's of Milford, Inc. (Milford)	AFO	3,000	8-27-10
Lake Trio Homeowner's Improvement Assn. (Washington)	WW	3,000	8-29-10
Wendall Abkes (Parkersburg)	SW	7,000	11-07-10
# Chris Wessels (Earlville)	AFO	3,500	11-12-10
Jefferson, City of	AQ/SW	2,500	11-18-10
# Blake Hershberger; Jennifer Hershberger (Washington Co.)	AFO	2,000	11-20-10
Eastern Hills Baptist Church (Council Bluffs)	WS	3,000	11-29-10
<b>James Bailey; James Bailey Construction (Douds)</b>	<b>AQ/SW</b>	<b>3,500</b>	<b>12-01-10</b>
Jeff Grooms; Floris One Stop (Floris)	UT	1,000	12-09-10
<b>Leonard Dolezal (Cedar Rapids)</b>	<b>AQ/SW</b>	<b>2,400</b>	<b>12-14-10</b>
# <b>Joe McNeill (Kossuth Co.)</b>	<b>AFO</b>	<b>2,500</b>	<b>12-23-10</b>
# Brandon Diedrich; Diedrich Ag (Worth Co.)	AFO	5,000	12-27-10
# KRKL Cattle Inc. (Sioux Co.)	AFO	5,000	2-06-11
Keith Durand; Durand Construction (Lee Co.)	WW	500	2-13-11
Gaylord Construction, Inc. (Hardin Co.)	WW	4,000	2-13-11
Gonzalez & Sons Express, Inc. (DeSoto)	WW	8,000	4-20-11
Lyle Schroeder (Sioux Co.)	AQ	500	5-15-11
# Flying Eagle, Inc.; Will R. Ibeling (Hardin Co.)	AFO	4,800	5-16-11
David Kundel, LLC (Muscatine Co.)	AFO	3,500	5-19-11
Quality Mat Co., Inc. (Waterloo)	AQ	1,500	5-20-11
George O. Ackerson (Warren Co.)	SW	3,000	6-02-11
Simon Fitzpatrick (Harrison Co.)	SW	10,000	6-23-11
Shane Rechkemmer (Fayette Co.)	SW	1,000	6-24-11
Elite Fuel Four; Iowa Gas Group; USA Gas Depot; Kavya Corp.; Ish Oberoi (Indianola)	UT	10,000	-----
Elite Fuel Four; Iowa Gas Group; Liberty Mart; Ish Oberoi (Des Moines)	UT	10,000	-----
Elite Fuel Two; Iowa Gas Group; Ish Oberoi; Mark Kramer; M K Fueltime (New Hampton)	UT	10,000	-----
Elite Fuel Four; Iowa Gas Group; Gas Depot & Minimart; Ish Oberoi (Des Moines)	UT	10,000	-----
Elite Fuel Six; Iowa Gas Group; United Mini-Mart; Ish Oberoi (Des Moines)	UT	10,000	-----
Elite Fuel Six; Iowa Gas Group; United Gas Supply; Ish Oberoi (Des Moines)	UT	10,000	-----
Elite Fuel Six; Elite Fuel Two; Ish Oberoi (Waterloo)	UT	6,375	-----
Elite Fuel Eight; Iowa Gas Group; Sekon Brothers; Ish Oberoi (Des Moines)	UT	6,500	-----
Elite Fuel Eight; Iowa Gas Group; USA Gas Supply; Ish Oberoi (Des Moines)	UT	10,000	-----
	<b>TOTAL</b>	<b>610,212</b>	

**The following penalties have been placed on payment plans:**

* <b>Jerry Feilen and Rick Bain (Pottawattamie Co.)</b>	<b>AQ/SW</b>	<b>1,663</b>	<b>12-15-03</b>
* <b>Reginald Parcel (Henry Co.)</b>	<b>AQ/SW</b>	<b>110</b>	<b>4-23-05</b>
* <b>Country Stores of Carroll, Ltd. (Carroll)</b>	<b>UT</b>	<b>1,408</b>	<b>6-06-05</b>
* Douglas Bloomquist (Webster Co.)	AQ/SW	3,500	12-01-07
* Jack Knudson (Irwin)	UT	10,000	1-15-08
* <b>Craig Burns (Postville)</b>	<b>WW</b>	<b>950</b>	<b>7-15-08</b>
* Fred Knosby (Cumming)	AQ/SW	2,650	3-18-08

#Animal Feeding Operation

**BOLD Entries Have Been Referred to DRF**

#*Doug Hymbaugh (Ringgold Co.)	AQ/SW	200	12-08-08
* Goldsmith & Son, Inc.; J & G Pallet LLC (Sergeant Bluff)	WW	200	4-15-10
#*Richard Steen (Montgomery Co.)	AFO	2,000	2-15-10
<b># Jeff Behrens (Montgomery Co.)</b>	<b>AFO</b>	<b>889</b>	<b>8-15-09</b>
* Jacob Nielsen (Newell)	AQ/SW	250	3-25-10
* Land Pros, LLC; Meadow Brooke (Indianola)	WW	2,000	6-30-09
* 76 LTD (Washington Co.)	AFO	1,000	2-15-10
#*Gale Rehm (Franklin Co.)	AFO	500	8-01-09
* Ramona Gronbach; Thomas Gronbach	AQ/SW	2,325	11-01-10
# Jerry Passehl (Latimer)	SW/WW/HC	2,695	7-01-09
# Brad Eslick (Webster Co.)	AFO	1,667	8-30-09
<b># Ted Dickey dba Dickey Farms (Muscatine Co.)</b>	<b>AQ/SW/AFO</b>	<b>1,200</b>	<b>10-15-09</b>
# Denver Dairy Farm, LLC (Bremer Co.)	AFO	2,664	3-15-10
# HDS Farms, L.L.C. (Sioux Co.)	AFO	3,000	3-01-11
Active Thermal Concepts, Inc. (Linn Co.)	AQ	1,000	9-01-11
# Winter Feedlots, Inc. (Plymouth Co.)	AFO	837	5-15-11
Jerry Wernimont (Carroll)	AQ/SW	1,500	4-19-10
Pomeroy Rental LLC (Pomeroy)	AQ/SW	2,600	5-15-11
Bob Wright; Wright Excavating & Bulldozing (West Branch)	AQ/SW	1,750	9-30-11
Air Advantage; ANF Air Service (Des Moines Co.)	WW	2,125	2-01-11
Randy Bachman; Bachman Tiling & Excavating (Pomeroy)	AQ/SW	2,200	6-15-11
# Kevin Montgomery (Clinton Co.)	AFO	1,400	2-10-11
James Mathes (Marion Co.)	AFO	2,625	6-15-11
4-Star Pork, LLC (Buena Vista Co.)	AFO	1,500	11-23-10
Rock Bottom Dairy; Bernie Bakker (Rock Valley)	AFO	3,000	2-01-11
Frye Property Management, LLC (Ft. Dodge)	AQ	1,875	4-15-10
Tres M, LLC (Butler Co.)	AFO	2,000	6-15-11
Pam Lehman (Decatur Co.)	SW	2,150	5-30-11
Muller Livestock,L.C.; Jon Kelly Muller (Cass Co.)	WW	3,333	10-01-11
Regency of Iowa, Inc. (Johnson/Story Cos.)	AQ	4,992	6-01-11
# Tony Mertens (Lee Co.)	AFO	3,952	2-15-11
# Gary Riesberg (Carroll Co.)	AFO	2,400	4-01-11
# Guse Family Farm Corp. (Emmet Co.)	AFO	1,500	10-15-10
# Ernest Greiner (Keokuk Co.)	AFO	500	5-19-10
Quad City Drum Recycling Co., Inc. (Davenport)	AQ	594	5-01-11
TMAC Farms, LLC (Plymouth Co.)	AFO	1,577	6-01-11
Alchemist USA, LLC (Bouton)	UT	2,000	6-01-11
Stott Aerial Spray, Inc. (Jefferson)	AQ/SW	4,025	7-15-11
# J. Ward Farms, LLC; Jeff Ward (Worth Co.) (2 Orders)	AFO	3,750	5-01-11
Brian Anderson dba Northwest Ready Mix (Milford)	AQ	900	6-01-11
Brooklyn Elevator, Inc. (Poweshiek/Iowa Co.)	AQ/SW	2,000	5-01-12
# Ben McKinney (Franklin Co.)	AFO	2,000	6-16-11
	<b>TOTAL</b>	<b>99,116</b>	

**The following administrative penalties have been appealed:**

NAME/LOCATION	PROGRAM	AMOUNT
Dallas County Care Facility (Adel)	WW	5,000
Iowa Acquisitions, LLC (Floyd Co.)	SW	5,000
Table Mound Park Corp.; Table Mound #1 MHP (Dubuque Co.)	WW	7,500
Guy Thomas (Council Bluffs)	UT	10,000
Harlan Rudd; Karen Rudd; Rudd Bros. Tires (Drakesville)	UT	10,000

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**BOLD Entries Have Been Referred to DRF**

Bondurant, City of	WW	10,000
Higman Sand and Gravel, Inc. (Plymouth Co.)	FP	10,000
# CBJ Transport, LLC (Cerro Gordo Co.)	AFO	5,000
Jeff Grooms; Floris One Stop (Floris)	UT	3,500
Kendall Miller; Beatrice Miller; West Kimberly MHP	WW	4,000
Helen and Virgil Homer; Grandmas Snack Shop; Preston White (Aredale)	WS	8,461
June Oyer; Parsons Diehll, LLC; Plantation Village MHP	WW	2,500
Manson, City of	WS	10,000
Iowa Limestone Co. (Alden)	AQ	10,000
S & R One, Inc. (Burlington)	UT	3,690
	<b>TOTAL</b>	<b>104,651</b>

**The following administrative penalties have been collected:**

NAME/LOCATION	PROGRAM	AMOUNT
Kenneth Knight Sr. (Glenwood)	AQ/SW	500
Kum & Go, L.C. (Story Co.)	UT	10,000
# Cyclone Cattle, LLC (Henderson)	AFO	1,500
Randy Bachman; Bachman Tiling & Excavating (Pomeroy)	AQ/SW	200
# Keith Kooi; Kooi Farm, Inc. (Sioux Center)	AFO	3,500
Brooklyn Elevator, Inc. (Poweshiek/Iowa Co.)	AQ/SW	2,000
Brian Anderson dba Northwest Ready Mix (Milford)	AQ	100
TMAC Farms, LLC (Plymouth Co.)	AFO	83
Regency of Iowa, Inc. (Johnson/Story Cos.)	AQ	312
Pam Lehman (Decatur Co.)	SW	100
James Mathes (Marion Co.)	AFO	188
Muscatine Used Parts, Inc. (Muscatine)	AQ/SW/WW	5,000
Alchemist USA, LLC (Bouton)	UT	200
Hartford, City of	WW	1,500
# Steve Frick (Osceola Co.)	AFO	340
Titan Machinery, Inc. (Pottawattamie Co.)	AQ/SW	3,500
Lyle Schroeder; Kenneth Knight Sr. (Granville)	AQ/SW	500
Aric Den Boer (Sioux Co.)	AFO	3,000
# Winter Feedlots, Inc. (Plymouth Co.)	AFO	93
Randy Bachman; Bachman Tiling & Excavating (Pomeroy)	AQ/SW	200
Pomeroy Rental LLC (Pomeroy)	AQ/SW	200
# J. Ward Farms, LLC; Jeff Ward (Worth Co.) (2 Orders)	AFO	675
	<b>TOTAL</b>	<b>33,691</b>

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