



Iowa State Parks Integrated Vegetation Management Program General Plan

Plan Version 1.0 2015

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Iowa State Parks IRVM plan

Signature Page

This plan has been approved and authorized by:

A handwritten signature in blue ink, reading "Todd A. Coffelt", is written over a horizontal line.

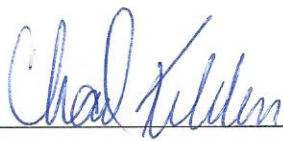
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Executive Program Elements

Goals of State Parks IRVM Plan

Iowa's State Park system is a collection of unique landforms and locations throughout the state. Throughout these areas are approximately 600 miles of state roadways, which presents parks with opportunities which are in line with the IRVM program.

Our goals are:

Reduce Mowing

State Parks are places for people to see the states natural land forms and plant communities. Parks staff has focused selective grooming to high use areas. Outside of these areas staff is re-directing their efforts to establish native grasses to reduce mowing needs.

Re-establishment of native plant communities

Our goal is to right of ways and associated areas back to native plant communities. The objective is appealing sustainable habitats for our park users to visit.

Combating Invasive Species

By returning to native plant communities, we hope to create a healthy plant community which will be resistant to invasive species. Staff will also be able to use prescribed fire as a tool in fighting non native plants.

Improve water quality into State Streams and Lakes.

Taking advantage of the root systems associated with native tall grass prairies will allow our road ditches to become sediment and nutrient traps, allowing a more filtered runoff from our state waterways.

Education

State Parks host an annual visitation of over 13 million people. Some come to stay and camp; others enjoy a peaceful drive through the parks. Whatever their interest, most state roadways have slower speeds posted allowing the public to actually see what is developing in the parks. State Parks provide a staff that is relative easy to find and willing to answer questions, creating the opportunity to explain the benefits of these natural plant communities.

Program History

State Parks began combating invasive species and re-establishment of native species in 2006. This program was initiated with parks operational funds and individual park staffing. Over the years the program continued using the initial skid loaders and fecon head to clear woody invasive species. In 2013 Parks staff obtained LRTF Funds to purchase a new Bobcat T770. The new machine has increased power and is better suited to covering the rough areas needed for the state program. To date, this machine is running the original fecon head purchased in 2006. In this initial program efforts were focused on the removal of woody species with the specialize equipment. Once removed, the individual state park supplied the tractors and other equipment to maintain and re-establish native plant communities. These communities include: prairie, savanna, woodland and wetlands. 2015 will represent the first IRVM plan submitted for Iowa State Parks as a whole.

Iowa State Park IRVM Decision Making Process

Annually, State Park District Supervisors will annually prioritize and assign equipment based on need, staffing and park equipment. Once the park has been identified, local staff will utilize our sister agencies (DNR Wildlife and Forestry Bureaus) for expertise in plant community re-establishment.

Budgets and funding will be approved by State Park supervisors on an annual basis, while timetables and priorities for work will be decided by the individual parks manager or ranger. These decisions will be based on recommendations from area biologists.

Decision making process:

- State Park Supervisors identify project areas based on input from staff

- Staff will contact their district wildlife biologist, forestry specialist and or county roadway managers

- Draft plan to reach goal of habitat establishment

- Determine funding sources and inventory needs

- Mobilize equipment and assign personnel

- Supervise work and progress

- Reevaluate project on a biannual basis and make adjustments in methods, equipment or personnel as needed

For the duration of these projects efforts should be sought to identify and take advantage of different funding sources or in kind labor. Examples can include private grants, living roadway trust fund, conservation corps personnel, Americorps personnel and volunteer labor. Local fire departments can also be utilized for prescribed burns as training exercises. These methods may also be used in establishing a new roadway management project.

Executive Summary

The purpose and goal of this IRVM plan is to set out guidelines for staff to follow in the implementation of each individual parks native species reestablishment.

Area Map

Please see appendix for Big Creek Example of 2012-2013 IRVM Project.

Parks will individually create area maps as assigned by District Supervisor pertaining to this project. These should include but not limited to: previous projects, project location, roads, facilities, and hazards.

Program Type

The State Park IRVM Program is housed in the individual park to which the equipment and staff had been assigned. Administration of the project will be through State Park supervisors and local full time park staff. This can include, but not limited to: work schedules, supply procurement, timetables, and logistics.

Jurisdictional Recognition and Approval

Management

Management of the IRVM plan as it pertains to the individual park will be made by full time park staff. These decisions and responsibilities will include: identifying objective, contacting biologist and other staff as needed, overseeing work, and completing any associated paperwork. On an annual basis, District Park Supervisors will make funding decisions and approve overall objective. For our purposes, roadways are areas that lead into habitat types or use areas. Decisions on success or failure should be evaluated on an annually with different aspects.

Mowed shoulders into public use areas

Is the roadway mowed and appealing to sight

Does the right of way hold water or show signs of rutting from equipment (if so, consider prairie or wetland species or drainage options)

Woodland restoration

Has a planting plan been created and followed

What methods are being implemented to control invasive species to allow for tree and shrub reestablishment (herbicide, mowing, etc)

Can prescribed fire be implemented (as directed by forestry specialist)

Savanna

Has a planting plan been created and followed

What methods are being implemented to control invasive species to allow for grassland plants and tree species.

Prairie

Has the planting plan suited the species to the area (selecting grasses in areas of broadleaf weed or woody vegetation history for long term management)

Are new seeding's being followed up with mowing and prescribed fire.

Are the seeding's meeting the needs and objectives set forth in the project plan.

Park rules, policies and procedures

State Parks are held by the Iowa Code 317

IAC 317

[https://www.legis.iowa.gov/publications/search/document?fq=id:573923&pdid=600760&q=noxious weeds#317.1A](https://www.legis.iowa.gov/publications/search/document?fq=id:573923&pdid=600760&q=noxious%20weeds#317.1A)

Noxious weeds and brush targeted by this plan(this is not an all inclusive list): garlic mustard, leafy spurge, canada thistle, bull thistle, lespedeza, honey suckle, autumn olive, and multi-flora rose.

In the case of prescribed fire, park staff will follow the attached prescribed fire policy, including burn reports and records of previous management.

State Parks will also follow local and county rules and regulations pertaining to vegetation management and burn regulations. Example: Sovereign Land Construction Permits, Polk County Burn Permits, and runoff control plans.

Program Organizational Structure

Staff Organizational Chart

State Parks are a branch of the Iowa Department of Natural Resources. Our organization is overseen by the Natural Resource Commission which is staffed by appointees by the governor of Iowa. Attached in the appendix is an organization chart.

Staffing Needs

The IRVM program immediate supervisor in project area will be the parks manager, ranger, or technician. Employees will work under the manager/ranger and will be trained and directed to complete the objectives of the IRVM program. As needed, park staff will be supplemental for this program.

All staffing decisions will be reviewed by the parks district supervisor on an annual basis.

Inventory and Analysis

Natural Resources

Prior to program initiation, an informal survey of plant species will be taken in the projected work area. In this survey, attention should be focused on plant species, composition, and topography. Where applicable, GIS should be used to track plantings and progress. If GIS is unavailable, hard copies should be created to manage the IRVM program. Please see the Big Creek State Park inventory example in the appendix.

As a tool for use in program evaluation staff should keep written or electronic records of the following:

- Initial project area survey

- Project timetable

- Seeding area species list and map

- Ongoing management: (including weed control, prescribed fire, supplemental seeding, or other management tools.

- GIS maps and photo records

Equipment

Focus of the IRVM shall be the goal of the particular project area. For example, the goal at Big Creek State Park is to remove invasive brush species and reestablish grasses, savanna or timber species. Each state park has equipment assigned to it, which will be used to complete the goals of this program.

Example: Big Creek State Park

2012 T770 - Good condition

2006 Fecon Head - Poor Condition

1971 Massey 255 Tractor - Poor condition

1999 6 ft John Deere brush mower - Medium Condition

2012 T650 - Good Condition

2013 Diamond Brush Mower - Good Condition

1999 Polaris atv - Medium Condition

2012 AgriFab Sprayer – Poor Condition

1970 4ft tandem disc - Medium Condition

4ft Roller – Homemade – Poor Condition

2012 bobcat brush mower – Good Condition

Note: the t 770 travels based on need

The above equipment list is similar to other parks (bobcat t650 and diamond mower are exceptions), and State Park Supervisors have ability to move equipment as needed.

Program Operations

January-March

Focus on removal of woody species as weather permits, attend training, focus on prescribed burn plans, and service and inspect equipment.

March-April

Prescribed burning, inventory materials needed for program, prepare for spring seeding and focus on spot spraying on early invasive species (example: garlic mustard) as permitted by plant germination and conditions.

April-October

Seeding, weed control, prairie maintenance (including woody species removal), spraying target species and mowing for first and second year prairie plantings.

October-December

Tree removal, fall/frost seedings, reports, fall prescribed burns, equipment maintenance and other duties as assigned.

For the duration of the program, staff will take advantage of opportunities to answer public questions about the program and tout the value of roadside plantings.

Work Area Types

Areas for State Parks were chosen based on some special significance. This creates several distinct and unique areas across the state. Special attention should be placed on these unique features during the planning phase of this program.

Typically the roadways in state park mimic the management of the larger area associated with them. These area types include:

Mowed/groomed roadways

These areas typically transition into high public use areas such as picnic areas, beaches, or facilities.

Woodland

Areas of roadway adjacent to either established old growth timber or reforestation projects.

Savanna

Areas with a mixed of native grasses and tree species

Prairie

Native grasses of either cool season or warm season species depending on site conditions.

Wetland

These are low areas and soil types that hold water or stay moist throughout the season.

Vegetation types for specific uses

In general the state park IRVM program will use a mix of native grasses and forbes with the intent of creating a roadway that constantly changes over the season. In areas where invasive species are persistent, plant choices should be made with herbicide treatment in mind.(example: planting native grasses only in order to use broadleaf

herbicide to control Canada Thistle) The IRVM program will rely on the local biologist in order to determine the best seed mixture for each area.

Special Projects

In certain circumstances, a native grass planting may not be the best fit for the area. Again, state parks will rely on advice from biologists in creating wetlands and timber stands as alternative native plant communities.

Should this determination be made, coordination should be made with the DOT, Army Corps of Engineers and the Sovereign Lands Section of the DNR and the proper permits shall be sought (sovereign lands construction, wetland determination, flood plain permit, storm water permit)

Methods

Coordinate with parks supervisor to identify project area

Consult with biologist on best approach for native plant community establishment. These approaches can include but are not limited to:

- Herbicide control

- Mechanical removal

- Direct Seeding

- Prescribed Fire

- Any combination of the above

Woody Species will be removed by forestry cutters and heavy equipment, followed by mowing and/or herbicide treatment. Once invasive species have been controlled, staff will create a suitable soil surface for seeding establishment. This can be done by one of two methods:

- A. Use herbicide to control existing vegetation, then create a suitable soil surface with conventional tillage for seed placement within the top 2 inches. In conventional seedings precautions should be to alleviate erosion concerns.
- B. Focus on fall/frost plantings. Area should have repeated treatment with herbicide to remove existing plant community. Seeded via broadcast or no till drill and packed prior to first significant snowfall.

Plantings should be evaluated on a biannual basis and documented for future treatments. These records should include seed mix species, records of previous management and herbicide use.

Young plantings should be mowed at a height of six inches or greater two-three times a season until seeding is established and enough biomass exists for prescribed fire.

Herbicide use should be documented as to herbicide type, rate and effectiveness on specific target species.

Prescribed fire should be used as soon as feasible. Timing of burns should be made for specific impact on target plant communities. These goals will be listed in the individual burn plan for that section.

Material Procurement

Once recommendations from a biologist have been received, plant materials should be obtained from our sister agencies (Prairie Resource Center, DNR Forestry Nursery) when applicable. A list of plant species available from the DNR Prairie Resource Center is attached in the appendix. In cases where seed needs cannot be met by the Prairie Resource Center, seed species should be procured using local species and ecotypes as approved by the biologist using state procurement methods.

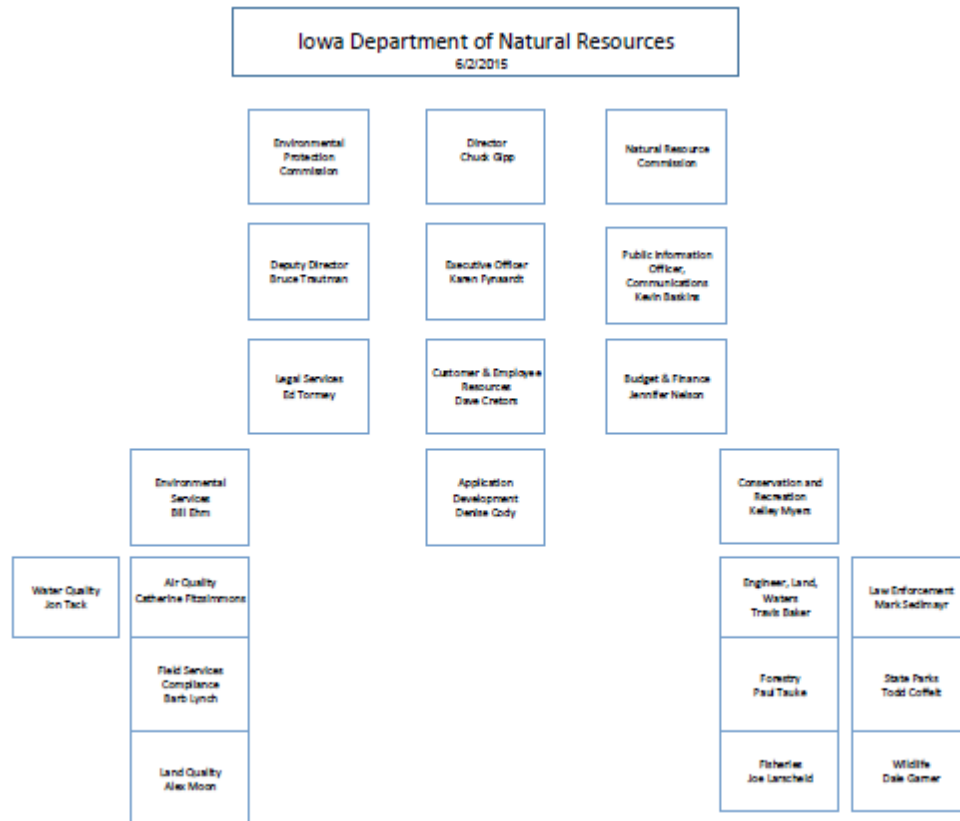
Storage

Storage of seed stock is to be on a temporary basis (6 months or less). The Prairie Resource Center provides grass seed in the fall. Efforts should be made to plant seed in the fall or early spring. In instances of longer storage, staff will follow the recommendations found on the Tall Grass Prairie Center Pamphlet found in the appendix.

Chemical Storage

Chemicals shall be stored in accordance with the Iowa DNR Chemical Management Plan attached in the appendix.

Appendix



Parks

Todd Coffelt, Bureau Chief 725-8485

District 1 Frank Rickard, PSE 2 Supervisor 712-336-1840	District 2 Scot Michelson, PSE 2 Supervisor 563-624-2000	District 3 Jim Lawson, PSE 2 Supervisor 515-725-8489	District 4 Tom Bester, PSE 2 Supervisor 319-694-2430	District 5 Greg Van Fossen, PSE 2 Supervisor 515-571-4010	Rules, Concessions, Reservations 515-725-9486 Sherry Ambrose Capital/Landscape Architect 515-725-9487 Angela Corio Program Planner 515-725-9488 Jessica Menten
District 1 Satellite 712-667-2608 Diane Mahn, Secretary	Backbone 563-624-2000 Mary Sheer, Park Manager Dave Sonne, Park Ranger	Green Valley 661-752-5191 Alan Carr, Park Ranger Daniel Goul, NR Tech	Elk Rock 641-542-8008 Chad Rowson, Park Ranger	Beed's Lake 641-456-2047 Scott Dowdcher, Park Ranger	
Black Hawk 712-667-4712 Ryan O'Neill, Park Manager Corey Pangman, NR Technician	Ballenas 563-721-4019 Vacant, Park Manager	Lake Ardis 712-762-3564 John Peach, Park Manager	Geode 319-382-4801 Ulf Konig, Park Manager Andrew Kuddler, Park Ranger	Big Creek 515-564-6673 Chad Ketchen, Park Manager Jeff Poon, Park Ranger	Central Shop 319-624-3429 Tim Schutt, Corp. 2 Bryan Oaks, Corp. 1
Clear Lake 641-357-4212 Josh Rembe, Park Ranger	Cedar Rock 319-624-3572 Jacob Sathe, NR Tech Katie Hund, PP 2	Lake Alkoush 515-361-7101 Josh Shipman, Park Manager Craig Obertrocking, Park Ranger	Honey Creek Park 641-722-3759 Stacie Aheal, Park Manager	Brutty Creek, Lehigh 515-543-0260 Amber O'Neill, Park Manager Eddie Eskin, Park Ranger	
Gull Point 712-337-3211 Tim Ritchey, Park Manager Heath Gravett, Park Ranger Corey McCann, Park Ranger	Maquoketa Caves 563-662-5503 Scott Dykstra, Park Ranger	Lake Manawa 712-396-0220 Dan Jacobs, Park Manager Walt Rocco, Park Ranger Krist Peterson, Park Ranger	Honey Creek Resort 606-677-3344 Mike Godby, Park Manager	Dolliver 515-359-2539 Kevin Herring, Park Manager Eddie Eskin, Park Ranger	Snowmobile/OhV 515-236-3564 David Downing Snowmobile/OhV Education 515-725-5460 Rhonda Fowler
Lewis & Clark 712-423-2629 Vacant, Park Ranger John McAndrews, NR Tech	Mine of Spain 563-556-0620 Wayne Buchholz, Park Ranger Matt Bonar, NR Tech	Lake of Three Pines 712-522-2700 Doug Sleep, Park Manager Andrew Roach, NR Tech	Lacey Kaskasaurus 319-382-3502 Justin Padgett, Park Manager James Brotherton, NR Tech	George With 319-232-5505 Lori Eberhard, Park Manager Gary Duenberry, Park Ranger	State Trails - Wallace 515-725-5491 Whitney Davis, EO1 Big Creek State Park Trails Assistant 515-664-6473 Tim Wemmes, AA2 Trails Construction Tech 661-402-3061 Peter England
Midmouth Woods 641-629-3047 Tammy Domonika, Park Manager	Pallades Kaplan 319-662-6059 Jim Hansen, Park Ranger	Rice Eagles 641-422-3855 Bud Taylor, Park Manager	Lake Darling 319-564-2223 Vacant, Park Manager Zachary Heworth, Park Ranger	Ledges 515-432-1852 Andy Bartlett, Park Manager Mark Plymale, Park Ranger	
Pilot Knob 641-561-4035 Deb Coates, Park Ranger	Pike Peak/Yellow River 563-673-2341 Matt Tachigil, Park Manager Ryan Ratalick, Park Ranger	Prairie Rose 712-773-2701 Michelle Rensing, Park Manager	Lake Kasmah 641-673-6675 Chad Malone, Park Ranger	Pine Lake 641-656-5832 Don Primus, Park Manager Andy Place, Park Ranger	Parkia, Forestry, State Fair Julie Sparks, ISS 515-725-8285
Stone 712-252-4068 Kevin Papa, Park Ranger	Pleasant Creek 319-436-7716 Joan Fickling, Park Manager Carl Ralvey, Park Ranger	Viking Lake 712-629-2235 Todd Carlock, Park Ranger Jason Hyde, NR Tech	Lake Macdonald 319-504-2200 Ron Puettman, Park Manager Gwen Preston, Park Ranger	Rock Creek 641-236-3722 Kory Knolik, Park Ranger Nathan Cannon, NRT 2	
	Volga River 563-422-4161 Tom Halverson, Park Manager Jeff Hildebrand, Park Ranger	Walnut Woods 515-295-4502 Tim Gedler, Park Manager	Lake Wapello 641-722-3371 Ron Moore, Park Manager Chad Horn, Park Ranger	Springbrook 641-747-3591 Carolyn Wick, Park Manager Rod Nelson, Park Ranger Vacant, Custodial Worker Dave Messinger, Maintenance Amy Witter, Trng Spec 1 Anne RJordan, Intb Spec 2	
	Wapsipicon 319-462-2761 Dennis Murphy, Park Manager	Waubesa 712-362-2756 Kevin Thome, Park Manager Matt Molek, NR Tech	Red Hawk/Stephens Forest 641-774-5502 Mike Schroder, Park Manager	Union Grove 641-473-2556 Roger Thompson, Park Manager	
		Wilson Island 712-642-3569 Chris Anusson, Park Ranger	Wicket Den/Fairport 563-262-4337 Vacant, Park Ranger Jordan Vastine, NR Tech		

Iowa Prairie Resource Center Seed Availability by Species.

Available Grasses	Switch grass	June grass	Rough dropseed	Big bluestem
Indian grass	Little bluestem	Side oats grama	Canada wild rye	Virginia wild rye
Available Forbes		Alum root	Azure aster	Bergamot
Black-eyed susan	Blue flag iris	Blue joint grass	Blue vervain	Blue-eyed grass
Boneset	Bottle gentian	Brown eyed susans	Butterfly milkweed	Canada milkvetch
Cardinal flower	Carex bicknelli	Carex brevior	Carex frankii	Carex grayii
Carex lupulina	Carex molesta	Cinquefoil	Common mountain mint	Compass plant
Cream gentian	Cream indigo	Culvers root	Cup plant	Dotted blazing star
Downy gentian	False boneset	False dragonhead	Germander	Golden alexander
Gray-headed coneflower	Great blue lobelia	GreatSt. Johns Wort	Ground plum	Hoary vervain
Ironweed	Joe pye weed	Larkspur	Lead plant	Lousewort
New England aster	Ohio spiderwort	Oxeye	Pale purple coneflower	Pale spiked lobelia
Partridge pea	Penstomen	Porcupine grass	Prairie blazing star	Prairie coreopsis
Prairie dropseed	Prairie indian plantain	Prairie phlox	Prairie sage	Prairie spiderwort
Prairie sunflower	Prairie violet	Primrose	Purple hysop	Purple prairie clover
Ragwort	Rattlesnake master	Red root	Riddells goldenrod	Rosinweed
Rough blazing star	Round headed bushclover	Scaly blazing star	Showy tick trefoil	Sneezeweed
Stiff goldenrod	Sullivants milkweed	Swamp milkweed	Virginia mountain mint	White indigo
Whorled milkweed	Wild garlic	Wild licorice	Wild petunia	Winged angle loosestrife

IRVM Management Record_Big Creek



Name: Cadet Shelter IRVM Management

Previously smooth brome

Year Seeded: 2011 Savanna mix Basten revised mix 12911

Management:

Date	Procedure/recommendation
2012	Mowing at 6-12"
2013	Mowing at 6-12" fall fires did not take
2014	Selective removal of Canada thistle -transline, mullen/parsnip cut
2015	Spring Burns - good burn - crown vetch invading fall treat with transline.

2012-2013 IRVM Seeding

Prairie seedings

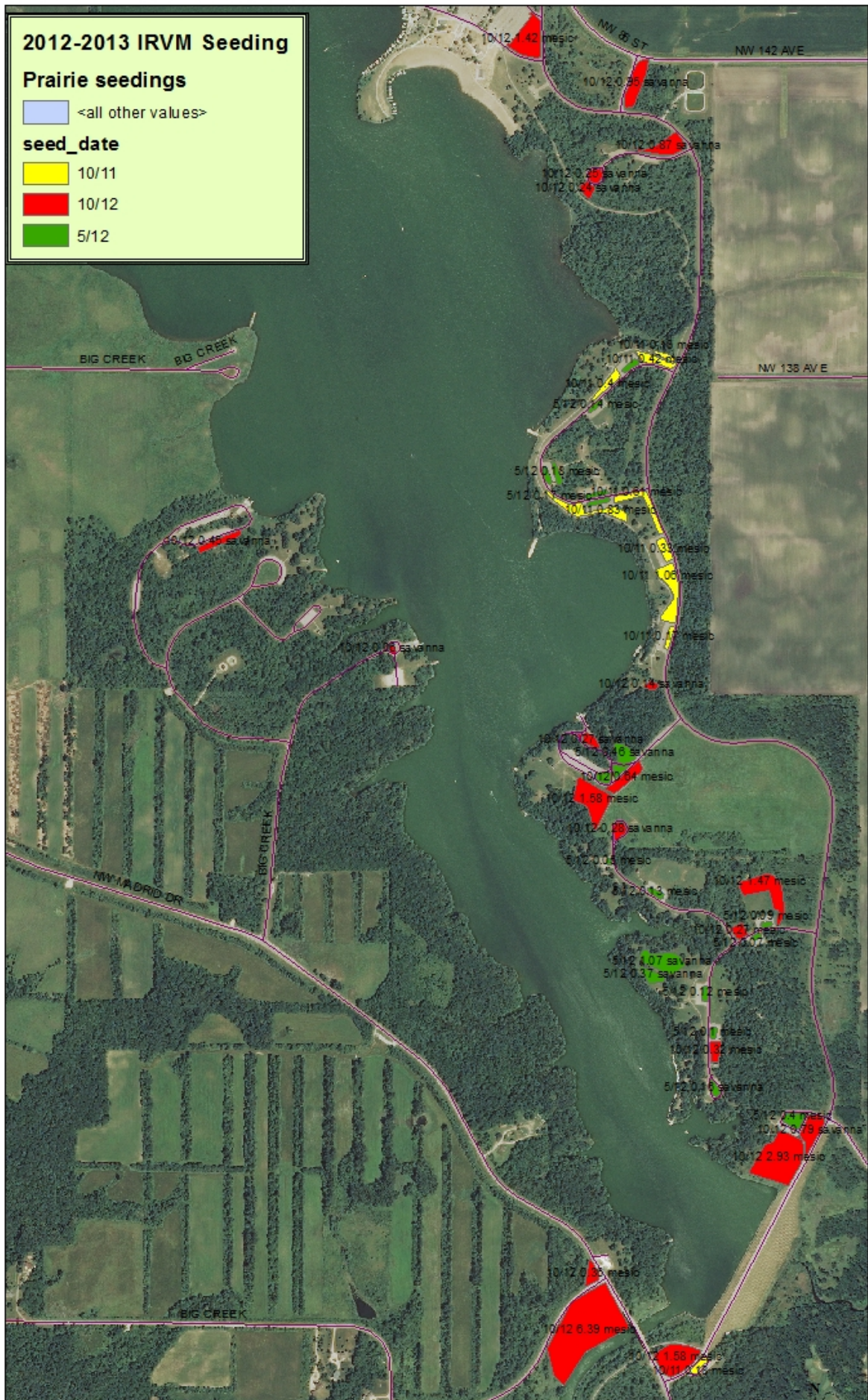
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seed_date

10/11

10/12

5/12



Tuligraas Prairie Center's Restoration Guide

Revised in 2008

Drying, Cleaning, and Storing Prairie Seed

Collecting native seed requires a considerable investment of time, patience, and diligence. If the seed is to be stored for any length of time, the best way to properly store for the harvest! Drying, cleaning and storage requirements for prairie seed after collecting will depend on how and which species are collected, the length of time stored, and the intended seedling method. If seed is collected in bulk and is immediately opened on a restoration site, little processing is necessary. Also, seed quality varies greatly from each year and from one site to another, so immediate cleaning may be in order. If seed quality is poor, immediate should be made to begin drying and cleaning material stored more than a day.

Consider keeping seed collections separate for individual species to facilitate thorough cleaning and assessment of seed quality. This is especially important if seed is collected for long-term storage, seedling propagation, seed banking, or for special restoration efforts.

Equipment Needed

This is a basic list of equipment needed for drying, cleaning and storing native seed on a modest scale.

Drying

- Clean, dry work space protected from the elements
- Inexpensive tarp for spreading out larger quantities of seed
- Low humidity and/or poor air circulation
- Thin type fans

Cleaning

- Plastic tubs and other containers of various sizes
- Screens of various mesh sizes and dimensions
- Sifter pans
- Good quality dust masks
- Good ventilation
- Heavy work boots for stomping

Storage

- Cool, dry, rodent proof storage area
- Packaging for long term storage (more than a year)
- Air-tight bags or containers for dried seed

Most of the bulk material in native seed collections is non-seed (leaves, twigs, stems, and other debris). The quality of material collected will dictate the scale of time, tools, and equipment needed for efficient drying and processing of the seed. Some species are much challenging to process than others.

To receive a copy or the more information, contact:
Tuligraas Prairie Center at 202.271.2000 or email
prairie@tuligraas.org
Tuligraas Prairie Center
University of Northern Iowa
Center Falls, IA 50501-0205
http://tuligraas.org/prairie-center/

Important Tips on Seed Drying

Drying bulk material immediately after harvest is critical for preventing mold and rot. Drying will also allow some moisture needs to open and air circulation of the seed will be more uniform, and thus help maximize seed yield. Good ventilation can be placed in a room or in a tent or spread out on a tarp or newspaper in a cool, dry place with good air circulation. If using paper bags, leave tops open and use fans to circulate air.

Spread bulk material on a tarp or newspaper in a cool, dry place with good air circulation.

LARGE

quantities of seed can be spread on a tarp and turned over or twice daily to keep the seed from becoming too hot. Place fans close to the tarp to keep air circulating over and around bulk material. Do NOT use any form of direct heat. It can damage and kill seeds. Turning may take several days in two weeks, depending on quantity and drying conditions.

Turn bulk material over on a tarp with fan.

Some Simple and Effective Cleaning Techniques

Simple techniques are available to effectively clean modest amounts of seed. Proper drying will remove much of the inert material and dust, and also remove sticky, undesirable seed. These cleaning techniques involve various ways of breaking down seed free of undesirable and sorting seed using screens and sifting. Seeds should be properly dried before further cleaning.

Threshing - Stomp Method

Species with large, coarse seed heads that tend to hold the seed tightly can be threshed by stomping. This method is very effective on wild radish (Raphanus), milkweed (Asclepias), compassplant (Anemone), and milkweed (Asclepias), milkweed (Asclepias), black-eyed peas and sweet clover (Melilotus), golden Alexander (Zizia). Using large plastic tubs, place a 2-in. layer of bulk material in the bottom and stomp the tubs in the corners of the tubs help break up any stubborn seed heads. Thumped material is then screened through a coarse wire or 1/4 in. screen into a second tub. Continue in batches, returning any un-thumped seed heads remaining to the stomping tub. Pale purple coneflowers (Echinacea) tends to be sticky and may require machine threshing unless it is collected late in the season after seed heads naturally begin to break apart.

Threshing - Shake Method

Many species have seeds that shake free of a capsule or open pod. This method can be effective for the seeds of goldenrod (Solidago), milkweed (Asclepias), cardinal flower and great blue lobelia (Lobelia), straggler (Lespedeza), and tall yellow (Lespedeza). Spread bulk material in a bag or tub and shake the bag or tub to break up the seed. This method has the advantage of minimizing the amount of chaff and inert material in the seed.

Threshing - Screen Method

Ward (Sisymbrium) and goldenrod (Solidago) seeds, for example, can be threshed by rubbing the seed heads over a large screen made of 1/4-in. or 1/2-in. hardware cloth using gloved hands or aluminum scoop shovels. Shake the screen in a tub or bucket over a tarp. Seed will flow down into the tarp and can easily be scooped up for further processing.

Seed screening with gloves.

Primary 2008

Tuligraas Prairie
Center
University of Northern Iowa
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(508) 271-2000
http://tuligraas.org

Tuligraas Prairie
Center
University of Northern Iowa
Center Falls, IA 50501-0204
(508) 271-2000
http://tuligraas.org

People: Types of Animals Used in the Laboratory: Game and Park Conservation. 41 p.

Iowa Department of Natural Resources Chemical Management Plan

Prepared for the Conservation
and Recreation Division
September 2007



Iowa Department of Natural Resources
Pollution Prevention (P2) Services
Through the 2007 P2 Intern Program

The information contained in this plan is not intended as a comprehensive regulatory compliance guide. Local, state or federal regulations may supersede the information presented herein.



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INTRODUCTION

This guidance manual presents information to aid in the proper storage, handling, and disposal of hazardous chemicals commonly used at state facilities operated by the IDNR. The practices discussed in this manual can prevent accidental fires, water contamination, toxic releases, and other hazardous accidents.

Chemicals can be found in storage areas, automotive shops, janitorial supply closets and other locations throughout a facility. The appropriate procedures to follow are dependent upon the product and the application, thus all staff must be knowledgeable about the specific requirements when handling chemical products.

Hazardous materials can pose threats to your health or the environment if not handled properly. Products such as motor oils or pesticides can contribute to the pollution of drinking water or nearby streams if disposed of or spilled on the ground. Vapors from paint thinners or solvents can be hazardous to breathe. Flammable products require careful storage methods to reduce the risk of accident.

In some cases, using a hazardous material is necessary. In other cases, a safer alternative may be available. It is up to each employee to understand how to make good decisions in product selection as well as the safe use, storage or disposal of hazardous products.

Green Cleaning Alternatives

General Cleaner

Mix one-half cup Borax in one-gallon water, wipe on surfaces and rinse.

Scouring Powder

Pour straight baking soda or Borax on a sponge and scour area.

Drain Cleaner

Pour one-half cup baking soda and one-half cup vinegar down drain and cover. After sitting, flush drain with a kettle of boiling water.

Window Cleaner

Place equal parts white vinegar and warm water in a spray bottle. Spray windows and dry with a soft cloth.

Oven Cleaner

Mix two tablespoons or more of baking soda in one-gallon of water. Scrub oven with mixture and very fine steel wool.

Disinfectant

Mix one-half cup Borax in one-gallon of hot water, wipe off surfaces, then rinse. Inhibits mold and mildew.

Toilet Bowl Cleaner

Pour baking soda or mild detergent on brush and scrub bowl.

Furniture Polish

Mix one tablespoon of lemon juice with two tablespoons of olive or vegetable oil. Dab on a cloth and polish wood.

DEFINITIONS

Material Safety Data Sheet (MSDS): Supplied by the manufacturer of the product, the MSDS provides specific information about the use of that product. An MSDS must be available for all chemicals at a facility. The following website provides links to search for a particular MSDS for a chemical. The appropriate reference site will depend on the chemical type and several categories are listed (www.ilpi.com/MSDS/index.html).

Regional Collection Center (RCC): permanent collection sites in Iowa that arrange for ongoing education and proper disposal of hazardous materials. The service is generally at no cost to households within the region, with varying fees for service to other businesses and organizations that are Conditionally Exempt Small Quantity Generators. A listing of Regional Collection Centers in the State is located in the Appendices.

Resource Conservation and Recovery Act (RCRA): The federal legislation to regulate hazardous wastes.

Special Waste Authorization (SWA): Nonhazardous wastes that are a possible threat to health or the environment may be disposed of per the landfill guidelines following a DNR issuance of a SWA. Examples include asbestos and petroleum contaminated soils.

Toxicity Characteristic Leaching Procedure (TCLP): Analytical testing performed to determine the toxicity of a substance.

Universal Waste: A category of common wastes that have specific disposal requirements. This includes batteries, pesticides and mercury containing items (i.e., thermometers, thermostats and barometers). Contact the Regional Collection Center for disposal options.

HAZARDOUS OR NON-HAZARDOUS?

What makes a substance hazardous? There are 4 main categories that classify a substance as hazardous:

Flammable: A liquid is considered flammable if its flashpoint is less than 140°F. A non-liquid is flammable if it is capable of spontaneous combustion. Examples of common flammables include:

- Petroleum
- Gasoline or kerosene
- Oil-based paint

Reactive: A substance is considered reactive when it is normally unstable and will readily undergo violent change, react violently with water, can produce toxic gases with water, or possess other similar properties causing it to react in a harmful way.

Corrosive: A substance is considered corrosive if it has a pH level less than 6, or greater than 9. It is also considered hazardous with a pH level less than 2 or greater than 12.5. Examples of common corrosives include:

- Battery acid
- Acid cleaners
- Concentrated bleach

Toxic: A substance is considered toxic if it is capable of causing damage to a living organism. The substance can be classified through Toxicity Characteristic Leaching Procedure (TCLP) testing. Examples of potential toxic substances are:

- Oil and oily parts
- Paint fumes
- Shop rags



At left is the National Fire Protection Agency (NFPA) hazard diamond. Each color has a specific hazard assigned to it and that hazard is then rated on a scale from 0 (no hazard) to 4 (extremely hazardous). The blue indicates a health hazard, red indicates flammability, yellow indicates reactivity, and the white block contains different symbols that further specify hazards: 'W' – water reactive; 'OX' – oxidizer; 'COR' – corrosive; and 'BIO' – biohazard.

GENERAL PRACTICES

Hazardous waste storage and handling procedures are regulated through the EPA as outlined in the Resource Conservation and Recovery Act (RCRA). The specific guidelines vary based upon the quantity and types of chemicals used and each facility can be defined by a generator status. The generator status, as defined in RCRA, ranges from a Conditionally Exempt Small Quantity generator to a Large Quantity Generator.



As hazardous waste from an IDNR facility generally results only when disposing of unneeded stock or the byproducts associated with chemical use, the quantities are small and the sites are designated as Conditionally Exempt Small Quantity Generators (CESQG). To stay within this designation, the facility must generate less than 220 pounds (about ½ of a 55 gallon drum) of hazardous materials per month. Waste accumulation must not exceed 2200 pounds at any given time.

In order to minimize the stock on hand, designate one person to be responsible for all chemical purchase and inventory control. Restrict access to chemicals to trained personnel.

The following actions will lessen the environmental impacts of chemical usage as well as reduce the storage and handling requirements:

- Convert to water-based paint.
- Change all cleaning solvents to non-hazardous citrus-based products.
- Use refillable dispensers in place of aerosols.
- If a solvent must be used, such as paint thinner, filter and reuse the solvent. Allow any sludge to settle, bag the sludge, and dispose of sludge as hazardous.



See Page 3 for green cleaning alternatives.

ILLEGAL DUMPING

Keep Iowa Beautiful sponsors a toll free number to report littering and illegal dumping of large items or volumes or material being disposed of or dumped along the roadway. Dial 1-222-NOLITTR (665-4887) to report an incident.

STORAGE

A good storage building should have the following:



- Signage on door or outside.
- Securely locked to prevent unauthorized person from entering.
- Storage shelves made from plastic or metal.
- Nonporous floors.
- No floor drains or relief outlets.
- Temperature control devices to prevent temperature extremes.
- Adequate lighting and ventilation.

There may be additional fire, storm water or other local and city ordinances that apply to a particular location. Check with local city authorities and fire protection personnel prior to any projects related to chemical storage.

GENERAL PRACTICES (CONTINUED)

Chemicals must be stored according to their hazard: Flammables should be stored with flammables, etc. It is good practice to store all unused chemicals away from waste chemicals. If stored together, it is easy to mistake waste for unused chemicals. All waste containers should be labeled with a name, and the date when first used. All containers must be compatible with the product stored (i.e., do not store a solvent in a plastic container). Any waste containers that will be reused should be rinsed thoroughly once empty of the original contents. The rinse water should be disposed of according to the waste that was stored in the container.

Older inventory should always be used first. Store old inventory in front of new inventory. Keep the inventory current by disposing of useless or expired materials. This will also reduce storage area requirements. It is important to label shelves so all employees know where everything should be stored.

Containers, drums, or above ground storage tanks containing hazardous materials should be put into secondary containment to catch possible spills. The secondary container can be a portable plastic tub, metal drum, pallet with a containerized base, bermed or paved area, or dead-end sump and slanted floor. Consider the following when planning for secondary containment:

- Use separate containers for wastes that are incompatible.
- Make sure the secondary containment has the capacity to hold 110 percent of the volume of the largest container or 10 percent of the volume of all containers, whichever is greater.
- If located outdoors, cover the secondary containment area to keep out water. If water or other fluid does accumulate, drain immediately. Testing of drain water may be required to determine the appropriate disposal technique for this liquid.

REGULAR INSPECTION

Storage areas should be inspected on a monthly basis to evaluate proper storage. The following should be assessed:

- Check the integrity of the containers by noting rust or leakage.
- Ensure effective seal or cap/lid tightly in place.
- Verify adequate aisle space is available.
- Inspect for spilled material.
- Verify that containers are labeled and secondary containment is provided.
- Check for the presence of a spill kit and emergency equipment such as a fire extinguisher and nearby phone.
- Verify that MSDS sheets are available for all products.



SPILL CONTROL

Place spill control kits in all areas where chemicals are used. Simple spill control kits can be made using two 5-gallon buckets. Prepare the buckets with the following materials:

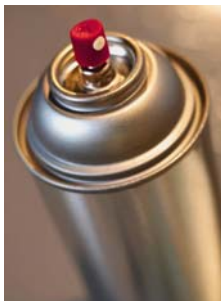
- Clean, dry sand (30 lb.)
- Unodorized kitty litter or oil absorbent (20 lb.)

Place a label with the contents on each bucket, and cover with plastic wrap. Place chemical splash goggles, chemical-resistant gloves, plastic broom, plastic dustpan, and several large heavy duty plastic garbage bags near the spill control kit.

CHEMICAL STORAGE AND WASTE MANAGEMENT SPECIFICS

FLAMMABLES

Flammable items are easily classified by using product labels and MSDSs. All manufacturers are required to label flammable products on a scale of 0 (no hazard) to 4 (extreme hazard). MSDS's will indicate how potentially dangerous a product is by labeling: caution - a low hazard, warning, or danger – an extreme hazard. Proper personal protective equipment (PPE) may include gloves, a respirator, goggles, or coveralls.



Storage: All flammable products must be kept in an approved flammable storage cabinet or on a metal shelving unit inside a flame resistant shed. This may include paint thinners, varnishes, lacquers, oil-based paint, waxes, aerosol spray cans, gasoline, kerosene, and other petroleum products.

Do not put materials that are incompatible next to each other or, if they must go next to each other, obtain a form of secondary containment. To determine proper shelving organization, consult all MSDSs for products that will be stored in the flammable cabinet. Store any dry flammables on the top shelves of cabinet.

Do not store any oxidizers (i.e. bleach) near any flammable items. Three sources are required to start a fire: an oxygen source, a heat source, and a flammable. If an oxidizer is near a flammable, only a small heat source is required to start a spark leading to a fire. Multiple containers of the same product should be stored next to one another and older stock used first.

- Consult MSDSs for incompatibles.
- Segregate incompatible materials.
- Obtain a form of secondary containment for any incompatibles that are not segregated. A small plastic tub will do.
- Store dry flammables above liquid flammables.
- DO NOT store near any oxidizers.
- Consult product label and MSDS for oxidizing information.
- Keep same products together and label the shelves.
- Keep older stock to one side and use first.

Spill: The first steps in the event of any spill are life and safety considerations, incident stabilization and then response. If safety has been addressed, stop the source and keep the spill from spreading, especially into drains, sewers, or water sources. Just one gallon of spilled fuel has the potential to contaminate 750,000 gallons of ground water. Remove any sources of ignition (heat, compressed gas) from the area and avoid breathing in the fumes. Next, consult the MSDS and call the IDNR Emergency Response Unit. See the Appendix for contact information. Identifying that a material is flammable is not enough to determine a proper spill clean-up procedure. You may be able to clean up the spill using an absorbent, but consult the IDNR Emergency Response Unit and MSDS beforehand. Dispose of all wastes properly, according to the fire department, product label and MSDS.



- Stop the source.
- Contain the spill.
- Keep spill from entering into drains/sewers or bodies of water.
- Remove ignition sources.
- Avoid breathing in fumes.
- Contact the IDNR Emergency Response Unit.
- Consult the MSDS.

IDNR Emergency Response can also assist with identifying local contractors to conduct spill clean up. See the Appendix for contact information.

CHEMICAL STORAGE AND WASTE MANAGEMENT SPECIFICS (CONTINUED)

Disposal/Recycling: Containers of flammables can sometimes be recycled. If the residual liquid is washed out of the container with a water and soda ash or soap mixture (consult MSDS for specific chemicals), the container can be recycled. Any unused flammable product could possibly be taken to the Regional Collection Center (RCC). Contact your local RCC for more information. See the Appendix for contact information.

TOXICS

Storage: Toxic products are a health hazard and should therefore be kept on the top-shelving units, out of reach of children. Consult MSDSs to find any incompatibles and make sure they are separated. Consult the label and MSDS for specific storage information.

Spills: Stop the source and contain the spill, not allowing the toxic to go near drains, sewers, or bodies of water. Some toxic chemicals can be absorbed with an absorbent. Follow label directions to properly contain these spills and contact IDNR Emergency Response. See the Appendix for contact information.

Disposal/Recycling: There are many different toxics, all requiring different handling procedures. Follow the directions on the product label and MSDS. Contact the local RCC, IDNR Emergency Response, or a hazardous waste management company for additional details on disposal or re-use options. See the Appendix for contact information.

CORROSIVES AND REACTIVE PRODUCTS

Storage: Chemicals can be identified as corrosive (acidic or basic) or reactive according to the product label and MSDS. All acids and bases should be stored on chemical resistant shelving (shelves with chemical resistant paint) away from flammable items. Acids and bases should never be stored next to each other. A shelf should be designated for acids only, as well as another shelf for bases only. If separate shelving is not plausible for your specific situation, acids and bases can be stored on the same shelf IF they have a form of secondary containment (corrosive resistant container). If corrosives must be stored with other types of hazardous materials (i.e. flammables, toxics, etc.), store corrosives on the bottom shelf. If more than one shelf is needed, store dry corrosives on the upper shelves and liquid corrosives on the lower shelves.

All reactive products should be stored on a separate shelf, if possible. Chemicals classified as reactive are either water reactive, or strong oxidizers. This means that they are usually unstable when near water or near flammable chemicals. DO NOT store any reactive chemicals near flammable chemicals. If flammables are within the same shelving unit, store the reactive products under the flammables so if a spill does occur, the two will not come in contact. Keep water reactive chemicals segregated from oxidizers, as these could possibly react with each other. Multiple containers of the same product should be stored next to one another and older stock used first. It would be easiest to always put new stock behind or to the right/left of old stock so employees can easily find the old stock and use it first.

- Store on chemical resistant shelves away from flammables.
- Segregate acids from bases.
- Store all corrosives on bottom shelves.
- Store all reactive products away from flammables (preferable), or if unavoidable, store below flammables.
- Keep same products together and label the shelves.
- Keep older stock to one side and use first.

CORROSIVES AND REACTIVE PRODUCTS (Continued)

Spills: As always, stop the source and contain the spill away from drains, sewers, and bodies of water. As part of a spill kit, pH paper and a neutralizer should be kept on site. Use the pH paper from the spill kit to identify whether the spill is acidic or basic if the spill material is not known. DNR Emergency Response should be notified to determine the appropriate clean up actions. See the Appendix for contact information. If instructed to proceed with clean up, follow directions on the neutralizer container to effectively neutralize and clean up the acid/base spill.

For reactive products, it is essential to keep spills from contacting any source of water because of possible explosion. Sweep up or absorb the spill with an old rag and dispose of waste in a labeled lidded container, away from water.

- Stop the source.
- Contain the spill, away from drains and bodies of water.
- Identify as either acidic or basic.
- Neutralize the spill.
- Dispose of waste in a labeled lidded container.

Disposal/Recycling: Acids and bases that are unwanted could possibly be reused through the Iowa Waste Exchange (IWE) program. Contact the local RCC for disposal options. See the Appendix for contact information.

BULK OIL, USED OIL AND OILY WASTES

Used oil contains organic chemicals and heavy metals. A small amount of oil can contaminate large quantities of ground and surface water and used oil must not be applied to roadways or parking areas.

Storage Tank Requirements: The IDNR regulates underground storage tanks. Dependent on tank size, the unit must display an annual or permanent registration tag affixed to the fill pipe. Appropriate leak detection and regular inspection may be required.

Above ground storage tanks are regulated by the Iowa State Fire Marshal and the EPA. If in excess of 1,100 gallons, the above ground tank must be approved by the Underwriters Laboratory and registered with the State Fire Marshal. If above ground petroleum product storage exceeds 1,320 gallons, a site is required to have a Spill Prevention Control & Countermeasure (SPCC) Plan.

Storage: Maintain oil storage tanks/drums in good condition and inspect regularly for leaks. Checking once at the beginning or end of each month, or when a leak seems apparent, should be sufficient to maintain the integrity of the tank. If a leak is found, remove oil from container immediately and repair the leak, if possible.

Oil is hazardous and therefore must have a form of secondary containment to catch any spills from the primary container. If oil is kept in bulk on site, it must be contained on a spill pallet or tank, preferably away from any bodies of water. If oil is kept on site in small quantities, it is not necessary to have a secondary containment unit, however, the floor of the storage area should be impermeable. This oil can be stored on a shelving unit, away from any drains and near a spill kit. If possible, store oil in a locked indoor area to prevent vandalism. Used oil should be stored separately, in a labeled old drum/tank that has a secondary containment unit, preferably with a lid to keep out any water. All oil should be stored indoors for complete protection against rainfall and segregation from the environment.

- Have a form of secondary containment.
- Maintain integrity of oil tanks/drums and secondary containment units.
- Check monthly. Repair any leaks/damages to tank, or purchase new.
- Store used and unused oil separately.
- Store indoors and, if possible, in a locked area.

BULK OIL, USED OIL AND OILY WASTE (CONTINUED)

There are many types of absorbents that can be used to clean the bulk of the spill, such as: rags that can be laundered, a mop and bucket (both of which are reusable), a purchased absorbent, or one-time use cloths. Absorbent “socks”, a fabric tube filled with a dry absorbent base such as vermiculite, may be reused up to 10 times. It is recommended that reusable equipment be used to clean oil spills. Thoroughly wring all used rags into a used oil container and store rags in a plastic/metal container until ready to be laundered or disposed of. Do not launder rags onsite if a septic system is the only means of wastewater disposal. Do not wash solvent or oil-soaked rags at the facility without prior approval from the wastewater treatment facility. Towels, pads, and booms may be washed by an industrial laundry service and reused.

If any disposable oil absorbents were used, contact the local RCC to determine how to dispose of these absorbents. Used absorbent and rags may be hazardous, depending upon the contamination. Laboratory analysis, in the form of a Toxicity Characteristic Leaching Procedure (TCLP) test, is required to determine if the materials are hazardous. If determined non-hazardous, a Special Waste Authorization may be granted through the DNR for disposal in the landfill. If hazardous, a licensed waste hauler must collect the waste materials.

Once the bulk of the spill is cleaned, a soap and water solution may be used to clean the residual oil. This wastewater can be discharged to the local wastewater treatment plant but may NOT be discharged directly outdoors or to a septic system. Doing this may pollute the soil and streams and inhibit the functionality of the septic system.

Stop the source.

- Segregate and contain spill, keep spill away from drains.
- Absorb spill – preferably with a reusable absorbent.
- Wring out used rags into a used oil container.
- Put used absorbent materials in a closed metal container, labeled.
- Contact local landfill or RCC to determine proper disposal.
- Store used rags in a metal/plastic container until ready for cleaning or disposal.
- Clean residual oil with soap and water.
- Dispose of water to the local wastewater treatment plant, not to a septic system or directly outdoors.

Disposal/Recycling Used Oil and Oil Filters: Used oil can be recycled by a used oil marketer/recycler or by burning in approved oil space heaters. Check with the used oil marketer/recycler or space heater manufacturer before adding any non-hazardous fluid. If the oil will be used for heating, the space heaters must have a capacity of 500,000 BTU/hr or less and be vented outside. Do not add hazardous solvents to used oil. If only small quantities of used oil are generated, quantities of 55 gallons or less may be self-transported to a RCC location. Alternatively, a used oil marketer/recycler can collect used oil from the site.

Used oil filters can also be recycled. The residual oil in the filter must be removed prior to recycling/disposal. **Hot draining** is a relatively easy method to remove residual oil. Simply puncture the bottom of the filter and keep at a high temperature (near engine temperature), letting the oil flow into a drip pan for about an hour. Use caution when applying heat or handling heated materials. Any oil collected from draining should be put in a used oil container.

- Do not mix any hazardous materials with used oil.
- If less than 55 gallons need to be recycled, take to the local RCC.
- Used oil can be used as fuel in space heaters or recycled.
- “Hot drain” oil filters and dispose of through a recycler.

For used oil or filter recyclers, visit www.iwrc.org under Vendor List.

PESTICIDES

Storage: Pesticides, including herbicides, insecticides, fungicides, and rodenticides, should be stored in a metal or concrete building, segregated from fertilizers and solvents. Areas of the building in close proximity of pesticide storage should be checked routinely for cracks that may allow water in the building. The outside of the building should contain signs identifying “Pesticide Storage” and “No Smoking”. Pesticides should not be stored on the floor in case of accidental contact with water. Store pesticides in original containers on metal/plastic shelving or, if storing on wood shelving, paint shelving with waterproof paint to minimize absorption. Secondary containment in the form of plastic tubs is also recommended. There should be no drains present in the building. If there is a drain, it should be sealed to prevent uncontrolled release in the event of a spill. Store any dry pesticides above liquid pesticides. Multiple containers of the same product should be stored next to one another and older stock used first. It would be easiest to always put new stock behind or to the right/left of old stock so employees can easily find the old stock and use it first.

- Store in metal/concrete building with proper signage.
- Store above floor on plastic/metal shelves, away from fertilizers and solvents.
- No drain or outlet should be present.
- Keep spill supplies in building.
- MSDSs should be kept close at hand.
- Keep similar products together and label the shelves.
- Keep older stock to one side and use first.

Spill Management: In the event of a spill, first stop the source of the spill by plugging leaks, setting the container upright, or closing a valve. Contain the spill making sure it does not seep into drains or septic systems. Consult the MSDS and the product label for proper clean up. If spilled material can be reused (such as dry pesticides), put in a leak-proof container (bucket with lid) and use as soon as possible. In a leak-proof container with a lid, collect spilled material as well as any absorbents that cannot be used. Make sure the container is labeled “Pesticide Wastes”.

- Stop source.
- Contain spill.
- Consult MSDS.
- Collect reusable material and store for next use.
- Collect contaminated material (including pesticide and absorbents) and store in a pesticide waste container.
- Waste must be disposed of at either a local RCC or a hazardous waste company.

Disposal/Recycling: If there is an excess of pesticide, the best means of disposal is to apply it to a site at or below the label recommended application rate. All applicators and containers containing residual pesticides should be triple rinsed immediately after being emptied and rinse applied to an acceptable site. Containers can then be punctured and recycled with other plastics or metals, depending on container type. If a pesticide is suddenly suspended or cancelled and still in the factory container, contact the manufacturer to see if the product can be returned. If the product cannot be returned, contact the local RCC or a hazardous waste management company to dispose of the product properly. The Iowa Waste Exchange (IWE) program can help locate a potential user for all unwanted materials, thereby resulting in a beneficial use as opposed to disposal. See the Appendix for contact information.

- Apply excess pesticide to a site as soon as possible at or below the label recommended application rate.
- Rinse residual pesticide 3 times. Apply rinse to an accepted site.
- Recycle containers. Puncture containers prior to recycling.
- Contact manufacturer, IWE, local RCC, or a hazardous waste company for suspended/cancelled pesticides.
- Contact IWE for any unwanted pesticides

FERTILIZERS

Storage: Many fertilizers are oxidizers, one of the items necessary to start a fire. Fertilizers should, therefore, be stored away from flammable items and heat sources, such as fuels, solvents, and pesticides. Storing fertilizers in a concrete building with a metal/flame resistant roof is recommended. The building should not contain a drain. If it does have a drain, the drain should be covered. Outdoor storage of fertilizers is not recommended however, if necessary, the fertilizer must be protected from rain and stored on cement.

Keep protected from rainfall.

Store away from flammables.

Store in a concrete building with flame resistant roof.

Spills:

- Sweep up any spilled fertilizer immediately.
- This fertilizer can be collected and applied where applicable.
- Clean spills immediately. Use spilled fertilizer where applicable.

Disposal/Recycling: Most empty fertilizer bags can be disposed of at the local landfill. Contact the landfill to make sure they will accept the bags. Do not burn the bags. Any unwanted fertilizer can be best disposed of by finding a potential user. The Iowa Waste Exchange (IWE) helps facilitate exchanges such as these.

BATTERIES

Storage: The average car battery contains about 18 pounds of toxic metals and a gallon of corrosive acids. They have the potential to be very hazardous. Batteries should be stored in a dry place, away from sunlight and not near a drain. Keep batteries away from flammable liquids. Do not stack batteries on top of one another, as they will have the potential to fall and break open. Batteries stored outside should be on asphalt and have secondary containment. They should also be protected from rainfall.



- Store batteries in a closed, leakproof container.
- Store on a curbed, impermeable surface with spill controls.
- Unlike the storage of other wastes, sealed asphalt surfaces are best for battery storage because battery acid can degrade concrete.
- Store in a dry place.
- Do not stack on top of each other.
- Store away from flammable liquids, drains, and heat.
- Store batteries in an upright position to prevent leaks from vent holes.

Spills: Contain the spill with an absorbing sock, keeping battery acid away from drains and bodies of water. Neutralize the acid with a base, such as baking soda and put the waste in a labeled lidded container, resistant to corrosion. Contact the IDNR or Regional Collection Center for proper disposal of the neutralized acid waste. See the Appendix for contact information.

- Contain the spill, away from drains and bodies of water.
- Neutralize with baking soda or another base.
- Put waste in a labeled lidded container.

Disposal/Recycling: Battery retailers are required to take back any used batteries.

FLUORESCENT BULBS

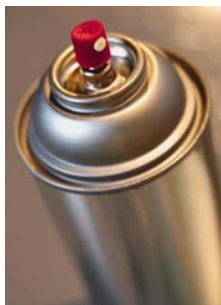
Storage: New and used bulbs can be stored in the original container or a sturdy labeled container to prevent accidental breakage. Date the container when the first spent bulb is placed inside and store onsite for not more than one year.

Spills: In the event of a bulb break, determine the type of bulb and contact the Regional Collection Center for specific clean up requirements. Mercury containing bulbs must be properly disposed of (see below).

Disposal/Recycling: Under the Resource Conservation and Recovery Act (RCRA), bulbs containing mercury are considered Universal Waste. Therefore, these lamps (fluorescent, high pressure sodium, mercury vapor, and metal halide) must be recycled. Fluorescent bulb recyclers can be found at www.iwrc.org.

PAINT AND AEROSOL CANS

Storage: Latex paint is considered non-hazardous but may be toxic if ingested, so storage areas should be secured. Do not allow the paint to freeze. Aerosol cans that have been emptied until less than three percent by weight of the original product remains in the can, and the pressure inside the can is equal to that outside, are exempt from hazardous waste regulations. Oil based paints and aerosol cans with greater than three percent content must be stored are flammable and must be stored per the requirements in that section.



Spills: In the event of a spill, first stop the source of the spill. Contain the spill making sure it does not seep into drains or septic systems. Consult the MSDS and the product label for proper clean up. Rags or absorbent can be used for spill clean up and disposed with solid waste for latex paint spills. The spill clean up materials for oil based paint spills may be considered hazardous waste, depending upon the type of contamination. Store these rags and/or absorbent in a leak proof container with a lid, labeled "Paint Waste". Contact the local Regional Collection Center (RCC) for guidance as needed.

Disposal/Recycling: Some Regional Collection Centers (RCC's) in the state offer a latex paint recycling program through which usable paint can be donated. If this program is not available in your area or if the unwanted paint is not in usable condition, the paint can be dried and disposed of in the trash. Dry the latex paint in a well-ventilated area using one of the following techniques:

- Open the container and air dry.
- Mix with kitty litter or saw dust (then secure in plastic bag for disposal).
- Pour onto cardboard or newspaper.
- Mix with quick-drying additive that can be purchased at most hardware stores in the paint section.



Do not use or donate lead based paints. Dispose of lead based and oil based paints through the RCC. See the Appendix for contact information.

Aerosol cans that have been emptied should be recycled through a scrap metal dealer. Empty cans can be landfilled if recycling options are not available. Defective cans or unwanted cans that still contain hazardous product or propellant should be disposed of as a hazardous waste at the RCC or through a vendor.

ANTIFREEZE

Storage: Even “non-toxic” antifreeze becomes a potentially hazardous material after use due to an accumulation of fuel, solvents, and heavy metals.

Spills: In the event of a spill, first stop the source of the spill. Contain the spill making sure it does not seep into drains or septic systems. Consult the MSDS and the product label for proper clean up. Rags or absorbent can be used for spill clean up. The spill clean up materials may be considered hazardous waste, depending upon the type of contamination. Store these rags and/or absorbent in a leak proof container with a lid, labeled “Antifreeze Waste”. Contact the local Regional Collection Center (RCC) for guidance as needed.

Disposal/Recycling: Antifreeze must never be disposed of in a septic system or to the ground. Antifreeze can be recycled onsite with filtration or distillation units. Offsite recyclers can be found at the vendor database on www.iwrc.org.

COMPRESSED GAS

Storage: Compressed gas cylinders, such as propane, oxy-acetylene, argon or helium, should be stored upright, away from all sources of heat or flame. The cylinder should be chained or lashed while in use, storage, or transport. Rolling or dragging a cylinder may damage a valve and pose a safety threat. When not in use, the cylinder should remain capped.

Spills: If upset, allow the contents of the cylinder to settle prior to use.

Disposal/Recycling: The product vendor should exchange a full cylinder for an empty one. The Iowa Waste Exchange can be contacted regarding a non-returnable cylinder.

ELECTRONICS

Storage: E-Waste (electronics waste), also known as "brown goods," refers to electronic equipment that is no longer usable or wanted. It encompasses a broad and growing range of electronic devices, including computers, TVs, cellular phones and personal stereos, digital cameras, MP3 players, DVD players and electronic games (but not including household appliances).



Spills: Some electronics contain mercury and special measures may be required in the event of breakage. Contact the local Regional Collection Center for guidance.

Disposal/Recycling: The following website will provide information on reuse and recycling opportunities in the state. The Iowa Waste Exchange can also help identify possible reuse opportunities.

<http://www.iowadnr.com/waste/recycling/ewaste.html>

TIRES

Storage: If tires must be stored outside, store waste tires in a sunny area to speed evaporation of standing water and kill heat-intolerant mosquito larvae. No more than 500 waste tires may be stored at a site without a DNR permit. Limit individual stockpiles to 50,000 cubic feet by 10 feet high. Prohibit smoking and lighting of flames around stockpile area. Tires cannot be stored closer than 50 feet from any fence or property line. Any person transporting more than 40 waste tires must be registered as a waste tire hauler.

Disposal/Recycling: Landfill disposal of tires with general trash is prohibited by Iowa Code. Used tires can usually be disposed of at the location where new tires are purchased. These tires can then be processed for reuse or recycled. Other sites that may accept waste tires for a disposal fee are:

- Recycling Centers
- Registered Waste Tire Haulers
- Permitted Waste Tire Processors , including:

GreenMan Technologies of Iowa Inc.,
1914 E Euclid, Des Moines, Iowa 50313
(515) 262-4900

Railway, Inc.,
P.O. Box 849,
Cascade, IA 52033
(563) 557-8271

Sanitary Landfills

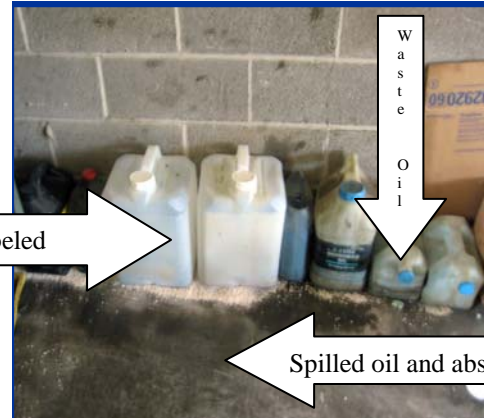
See the DNR website for a list of registered waste tire haulers, www.iowadnr.com/waste/recyclers/tires/files/haulerlist.pdf



APPENDIX

Example Chemical Management Situations

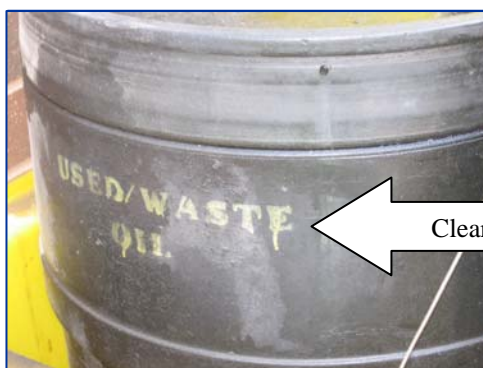
This is a cement storage unit for fuels. The shed is adequate, but the organization is not. It is crowded and unorganized, with a great potential for a spill. Get rid of items that are not needed and organize the storage area.



Waste not labeled

Spilled oil and absorbent

This is a good example of what not to do. The used oil is stored in containers that are not labeled "Used Oil Waste". There is spilled oil on the floor, as well as used absorbent. On top of the oil spill are two containers of an unknown liquid. Spilled oil and absorbent should be cleaned up right away.



Clear Label

This is a proper container for used oil. It is clearly labeled and in good condition.



Secondary Containment

A good example of used oil storage, this oil has a secondary containment unit. It is stored away from bodies of water and has a lockable lid.

Example Chemical Management Situations



Secondary Containment

This is storage unit also provides a form of secondary containment to catch any leaks.



This storage area held chemicals that could not be stored in an area with a drain. The drain is covered with a tough plastic layer and labeled.



This storage area is well organized. Everything is clearly labeled and easy to read.

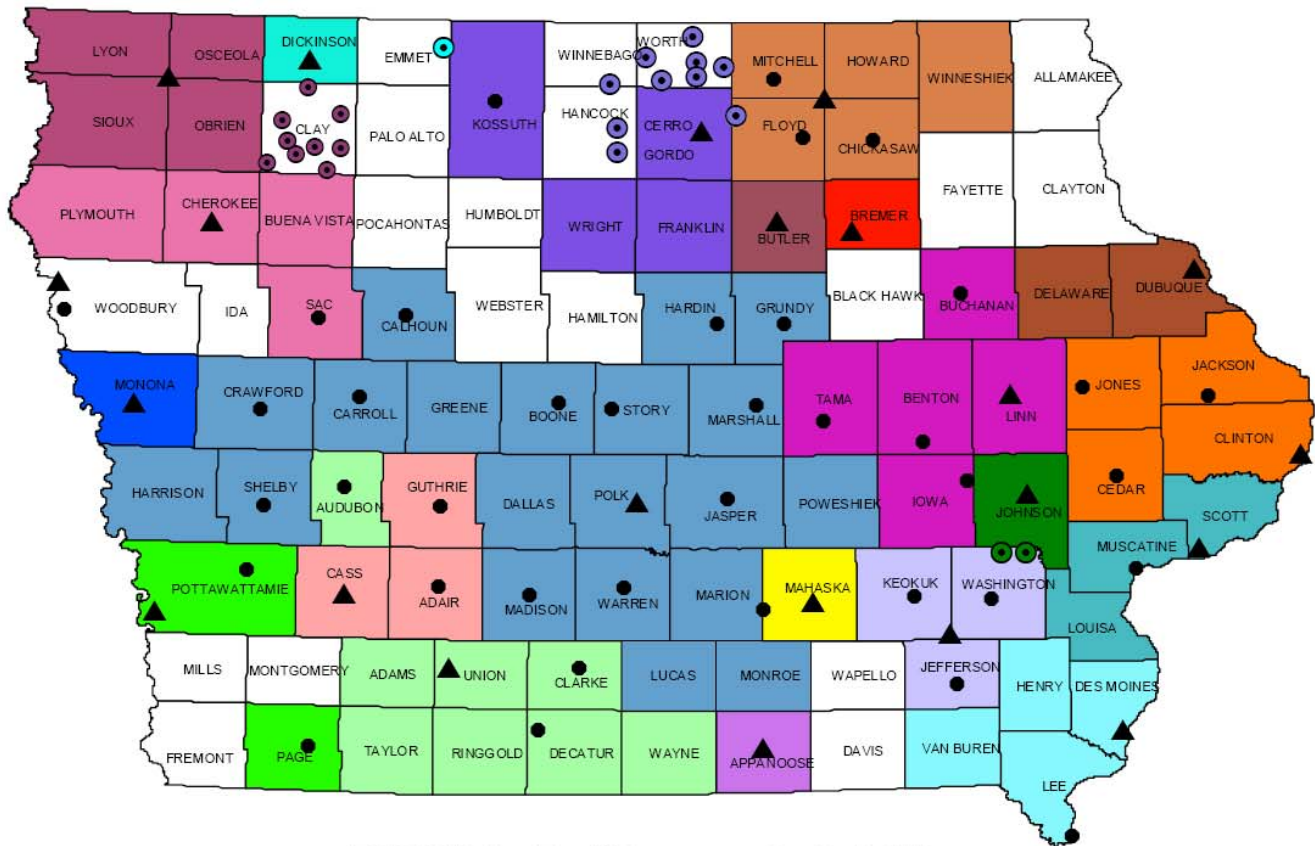
Pallets will not contain a spill



These drums need secondary containment in case of a spill. The pallets that they are stored on do not have a sump to contain a spill.

Regional Collection Centers

Regional Collection Centers (RCC) are permanent collection facilities designed to assist the public and small businesses with proper management of hazardous materials.

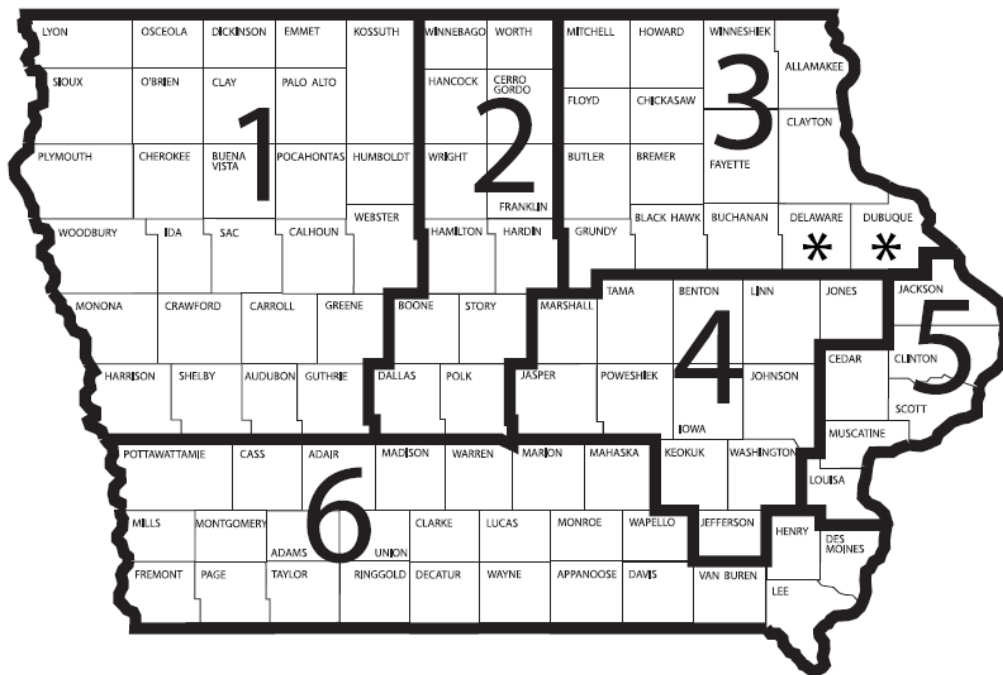


▲ RCC Main Facilities ● Satellites

- | | | |
|-------------------------------|----------------------------------|----------------------------|
| ■ Appannose Co. RCC | ■ Dubuque Co. RCC | ■ Monona County RCC |
| ■ Bremer Co. RCC | ■ Floyd, Mitchell, Chickasaw RCC | ■ NIASWA RCC |
| ■ Butler Co. RCC | ■ Haz Chem RCC | ● NIASWA Served Cities |
| ■ Cass Co. RCC | ■ Iowa City RCC | ■ PCB RCC |
| ■ Cedar Rapids / Linn Co. RCC | ● Iowa City Served Cities | ■ Prairie and Partners RCC |
| ■ Clinton Co. RCC | ● Landfill of North Iowa | ■ Scott Co RCC |
| ■ Council Bluffs RCC | ● LNI Served Cities | ■ SEMCO |
| ■ Dickinson Co. RCC | ■ Mahaska Co. RCC | ▲ Sioux City RCC |
| ● Dickinson Served Cities | ■ Metro Waste Authority | □ Unserved Counties |

Obtain updated contact information by visiting the Iowa Department of Natural Resources' Website at www.iowadnr.com/waste/hhm/files/rcccontacts08.pdf.

IOWA WASTE EXCHANGE PRIMARY SERVICE AREAS



Area 1

Fred Kesten
1009 E. Anthony St.
PO Box 768
Carroll, IA 51401
Phone: 712.792.9914
Fax: 712.792.1751
fkesten@region12cog.org
Host Organization: Region XII Council of Governments

Area 2

Shelene Codner
2006 S. Ankeny Blvd.
Bldg 18, Rm 25D
Ankeny, IA 50023-3993
Phone: 515.965.7194
Cell: 319.404.1942
Fax: 515.964.6206
scodner@region12cog.org
Host Organization: Des Moines Area Community College

Area 3

Jeff Schlee
229 E. Park Ave.
Waterloo, IA 50703
Phone: 319.235.0311
Fax: 319.235.2891
jschlee@inrcog.org
Host Organization: Iowa Northland Regional Council of Governments

*Delaware and Dubuque counties contact

Ben Kvigne
229 E. Park Ave.
Waterloo, IA 50703
Phone: 319.235.0311 ext. 125
Fax: 319.235.2891
bkvigne@inrcog.org

Area 4

Dick Stater
700 16th St. NE, Suite 301
Cedar Rapids, IA 52402
Phone: 319.365.9941 x. 21
Fax: 319.365.9981
dick.stater@ecicog.org
Host Organization: East Central Iowa Council of Governments

Area 5

Julie Plummer
306 West River Dr.
Davenport, IA 52801-1221
Phone: 563.336.3319 or 800.462.3255
Fax: 563.336.3350
jplummer@eicc.edu
Host Organization: Eastern Iowa Community College District

Area 6

Jim Reimer
2041 715th Ave.
Albia, IA 52531
Phone: 641.938.2845
Cell: 641.777.7949
jreimer@wildbluepella.org
Host Organization: Iowa Materials Exchange

Department of Natural Resources

Linda King
502 E. 9th St.
Des Moines, IA 50319-0034
Phone: 515.281.4876
Fax: 515.281.8895
linda.king@dnr.iowa.gov

IDNR 24 Hour Emergency Response Unit: (515) 281-8694

Vendors

For waste vendors, visit www.iwrc.org. Click on 'vendors' and choose the appropriate waste class.

Safety Cabinet Vendors

<http://safety-cabinets.storquip.com/>
www.WarehouseSupplyOnline.com
www.Fecol.com
www.discountssafetygear.com
www.leonardsafety.com
www.CHDist.com

Spill Containment

Hydro-Klean

(515) 283-0500
333 NW 49th Pl
Saylor Township, IA

Hydro-Klean Industrial/ Environmental 24 Hour Service

(515) 283-0500
2nd Ave & I-80/35
Des Moines, IA

J Pettiecord Inc

(515) 263-8900
5043 NE 22nd St Des Moines, IA
50313-2519

Spill & Erosion Control

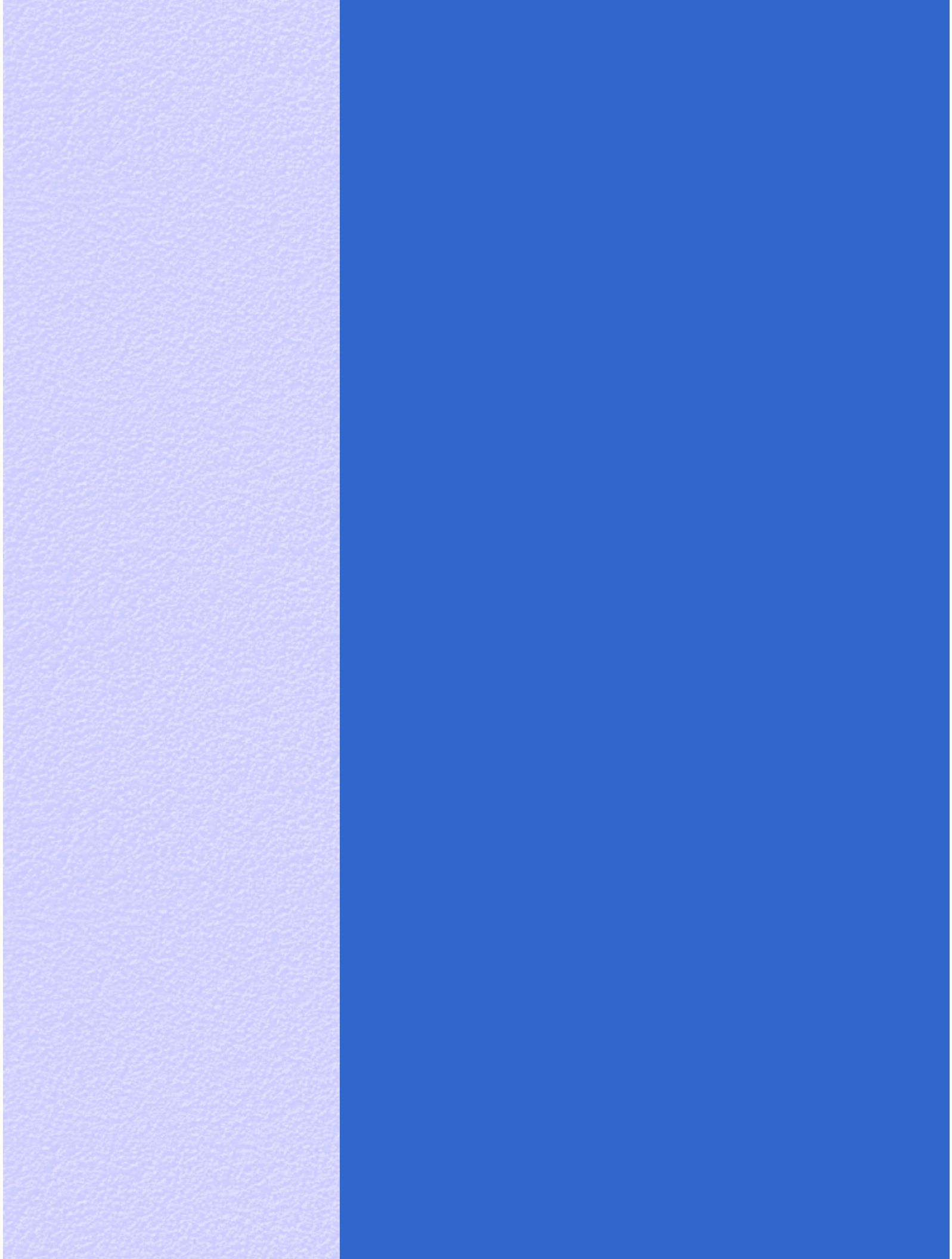
(563) 359-7840
2550 Middle Rd
Bettendorf, IA 52722-7905

Marc Enviro Services Inc

(402) 492-8025
Council Bluffs, IA

Labels

<http://www.labelmaster.com/>



Iowa Department of Natural Resources
Prescribed Fire Policy
March 12, 2010



Iowa Department of Natural Resources
Richard A. Leopold, Director
Wallace State Office Building
Des Moines, Iowa 50319

Iowa Department of Natural Resources Prescribed Fire Policy

Date: March 12, 2010

The most current version of this Policy will always be the version found on the DNR website.

Section 1: Purpose

The purpose of the Iowa Department of Natural Resources' Prescribed Fire Policy (Policy) is to guide the effective and safe use of fire as a tool for ecological restoration and maintenance of Iowa's natural areas on state owned, leased or managed lands, and private lands for which landowners seek the advice and consult of the DNR and declare their intention to use fire as a management tool. Prescribed fire is any fire ignited by intentional management actions under specific conditions to meet defined objectives and undertaken in accordance with a burn plan developed for that area. The use of prescribed fire contributes to the DNR goals of improving habitat and forest health by implementing fire treatments that approximate the natural ecological role of fire, and conserving resources that DNR holds and manages for the public trust.

Section 2: Scope

This Policy will define the base requirements for both DNR-approved burn plans and the participation of DNR employees in developing and executing the approved burn plans on state-owned and/or managed lands and private lands.

Section 3: Roles and Qualifications

DNR staff, volunteers and contractors participating in prescribed burning activities shall have training and experience commensurate to their involvement in the prescribed burn. Training and experience requirements will vary based on the individual's level of involvement.

Physical fitness requirements will be specified by the individual's condition of employment or determined by their supervisor where no employment condition exists. Individuals working directly on a prescribed fire should be capable of walking two miles in less than 35 minutes. Employees are responsible for informing their supervisor if they are not capable of performing that task or of any condition that may limit them in performing a job on a prescribed burn. In addition, it is the responsibility of the employee's supervisor, lead worker or the Burn Leader to take preventive action in situations where an employee appears physically incapable of performing without risk of injury due to work demands.

Required Training and Experience:

All permanent DNR employees working on prescribed burns shall successfully complete the following National Wildfire Coordinating Group (NWCG)¹ training courses or other equivalent state or federal training; Basic Incident Command System (I-100), Fire Fighter Training (S-130) and Wildland Fire Behavior (S-190). DNR employees participating in prescribed burns must also complete a fire training refresher course at least once every two years. The Burn Leader shall make appropriate assignments to personnel and volunteers who have not completed the above courses. Such assignments shall be based on the individual's observable or known physical condition, stated experience, level of training and observable leadership qualities. Additional training beyond the minimum requirements may be prescribed by the employee's supervisor to build upon and enhance prescribed burning skills and to meet specific DNR needs. All participants are responsible to document their training and must be able to provide proof of such training upon the request of a supervisor or a Burn Leader overseeing the participant.

¹ NWCG training programs and tools are used by a number of governmental and non-governmental organizations, including without limitation US Forest Service, US Fish & Wildlife Service, US Department of the Interior, many states and the Nature Conservancy.

Requirements for writing and Approving Burn Plans:

Supervisors will designate who will write and approve burn plans based on individual training and experience level. Prescribed Burn Plans (Burn Plans) will be written in accordance with the form found in *Attachment A*. Employees' Burn Plans will be reviewed by their supervisors or their supervisors' designees.

Requirements and role of the Burn Leader

The Burn Leader is responsible for all activities relating to the on-site execution of the burn, including review of the burn plan, completion of the Pre-Burn and Go/No-Go Checklist (*Attachment C*). The Burn Leader shall evaluate the level of burn crew expertise needed for particular burns and will ensure the appropriate crew is in place prior to instigating such a burn. In addition to the minimum training required for all DNR employees participating in prescribed burns (I-100, S-130 and S-190), a Burn Leader must have participated in five (5) prescribed burns and served an apprenticeship under a Burn Leader on two (2) burns prior to a first assignment as a Burn Leader.

Volunteers

Non-DNR personnel may be involved in burning on DNR owned and/or managed lands, or on private lands when DNR personnel are acting in leadership capacities for the burn. Non-DNR personnel may include volunteers, volunteer fire departments or non-profit organizations. In such instances, they will work under the direct oral and visual control and supervision of the Burn Leader and shall be required to sign the appropriate volunteer forms and agree to follow the direction of the burn leader. The Burn Leader shall have the right to exclude any person, including non-DNR personnel, from participating in a burn, if in their sole opinion, the participant is not following this Policy or their participation may otherwise detrimentally impact their own safety, the safety the burn crew, the public's safety or burn plan implementation.

Section 4: Training

DNR shall provide the requisite training and opportunities for experience to its employees as part of their professional development plans when prescribed fire participation is a part of an employee's position description or is otherwise an expected activity for that employee. This Policy encourages the different sections, bureaus and divisions of the DNR to coordinate their interests in and share their respective expertise with regard to prescribed fire.

Section 5: Safety Equipment

The safety of personnel and volunteers is paramount in this Policy. All DNR personnel working on prescribed burns near open flames shall have access to and wear National Fire Protection Agency or NWCG approved fire resistant clothing, leather gloves, leather boots, and appropriate head and eye protection. Volunteers not wearing the protective gear listed above may participate directly on the burn provided they wear 100% cotton clothing and leather boots and gloves and appropriate head and eye protection.



All participants wearing clothing made of synthetic fibers (e.g., nylon, lycra, etc.) or common permanent-press materials shall be **prohibited** from working near open flames from the time the prescribed burn is initiated until the Burn Leader declares that the fire is extinguished. These materials may melt or stick to the skin when exposed to flame or heat.

The Burn Leader shall ensure that all personnel and volunteers working on prescribed burns shall have access to drinking water.

The Burn Leader shall assign radios, cell phones, or any other equipment as necessary.

Section 6: Burn Plans

The Burn Plan is an important document in the fire-use planning process that is completed prior to each specific prescribed burn. It is a field document that sets forth the details for conducting a particular burn treatment on a specified site to ensure the burn will be ecologically and technically feasible given the specific characteristics of the site. The details that are included in this plan are those necessary to conduct a safe and effective burn that will accomplish the specific goals and objectives specified in the Burn Plan.

This Burn Plan may be adapted in the field on the day of the burn under circumstances that require modification to insure safety or the achievement of the stated goals, provided the Go/No Go Checklist is satisfied. The Go/No Go Checklist is discussed more in Section 7 of this Policy.

A Prescribed Burn Plan form is included at the back of this Policy and shall be used for DNR-sponsored prescribed burns (*See Attachment A*). The Burn Plan must be adhered to during the burn to the extent practicable and must include, at a minimum, the following information, which is discussed in detail below:

1. Area background information.
2. Area/site objective of the burn.
3. Site-specific fire operations.
4. Burn Plan execution.

Area Background Information

This portion of the Burn Plan shall include a general description of the area including location, topography, vegetation, conservation targets or species of concern. A Burn Plan may be specific to a burn unit or to a whole property comprised of several burn units.

Area/Site Objectives of the Burn

The Burn Plan shall state an objective or group of objectives that the Burn Plan should achieve. The objectives shall reflect the DNR's conservation interest at the site, which specifically identifies how the prescribed fire will improve area biodiversity, overall ecological health, and/or reduce hazardous fuels. These goals will assist the burn plan writer in defining management actions that will contribute to those goals and will assist the Area Manager in monitoring how successful management has been. Ecological goals should focus on the desired results of fire management.

Site Specific Information for Fire Operations

This section of the Burn Plan shall address how burns will be accomplished. It should outline logistics that pertain to all burn sites and should include both background information about the site and risk analysis taking those site characteristics and objectives outlined above into account. Logistics addressed here should include:

- ◆ Target dates for the burn to be conducted.
- ◆ Location of the burn, as shown on high-quality maps that will orient the reader and fully illustrate the features of the burn. GIS maps are appropriate. The necessary maps shall include sufficient detail to show the following:
 - Location of site within the county.
 - Property boundaries.
 - Access and Trails.



- Targeted burn sites.
 - Smoke sensitive areas (housing, livestock facilities, hospitals, businesses, schools, airports, nursing homes and roads etc.)
(See Attachment B)
 - Species of Concern: plant and animal.
 - Alternate local water sources / dry hydrants.
 - Firebreaks already present or that will be developed, alternative firebreaks, and who will be responsible to develop them.
 - Adjacent land use / fuels
 - Proposed ignition pattern and sequence
- ◆ Minimum number of participants needed.
 - ◆ Equipments necessary to facilitate the burn.
 - ◆ Preferred wind and weather conditions
 - ◆ Radio frequencies to be used.
 - ◆ Communication needs, including:
 - Notifications required by law,
 - Notifications to local residents,
 - Notification to the Environmental Services Division's local field office and
 - Notifications to emergency responders who may be upon called to assist.
 - Location and phone number of nearest medical emergency facility.
 - ◆ Special safety concerns not otherwise addressed in the Burn Plan.
 - Primary constraints to burning operations at the site, including smoke management problems, legal restrictions or requirements, need for permits, hazards, public relations problems, and proximity to neighbors, and how they have been addressed. This section should also consider special requirements for federal lands or lands subject to special agreements.
 - Significant hazards and limitations associated with the burn site, including adjacent fuels, topography, size and fire treatment objectives.
 - ◆ Smoke Management Plan.
 - ◆ Contingency Plan (more information is available in Section 9).
 - ◆ Recommendations for post-burn reporting and monitoring.

Burn Plan Execution

This portion of the Burn Plan will describe how the Burn Leader shall execute the approved Burn Plan and shall complete the Pre-Burn Checklist, as described in Section 7 of this Policy, including the Go/No-Go checklist contained therein, prior to the burn.

Section 7: Pre-Burn and Go/No-Go Checklist

The Pre-Burn Checklist is a document to be used prior to initiating a burn for the purpose of insuring that the proper protocol is being followed and as a final checklist to eliminate overlooking any important details. The Pre-Burn Checklist also serve as an educational tool for all burn crew members to fully understand their specific duties, the Burn Plan, procedures, smoke management

issues and safety measures. The Burn Leader shall use the Pre-Burn Checklist provided in this Policy (*See Attachment C*) prior to every burn.

The Burn Leader shall assess factors on the day of the burn that may influence the fire behavior, such as weather, quality of the crew, and allocation of emergency resources. The Burn Leader will assess the fire resources on the day of the burn to determine if the appropriate resources are available to the burn and document those determinations in the Pre-Burn Checklist.

If any element of the Go/No-Go portion of the Pre-Burn Checklist is not satisfied, the Burn Plan shall not be deemed approved by the DNR, and either the Burn Plan must be changed to satisfy the Pre-Burn Checklist or the burn must be postponed.

Section 8: Burn Report

The Burn Report shall include records of each completed prescribed burn. The format for the Burn Report is included at the end of this Policy (*See Attachment D*). The Burn Leader or the Area Manager shall complete the Burn Report upon completing the burn. (The Area Manager should retain copies of the Prescribed Burn Plans and the Burn Reports.) The Burn Report shall include the following information, which is discussed more thoroughly below:

1. Operational Data.
2. Weather and vegetation conditions.
3. Fire summary.
4. Impacts to the site.

Operational Data

The Burn Leader shall summarize the operational data related to the burn, including the date of burn; time set; time completed; time mop-up completed; acres burned; name of burn plan writer; name of Burn Leader; and the total number of personnel in the crew.

Weather and Vegetation Conditions

The Burn Leader shall summarize the weather and vegetative conditions prior to and just after the burn, including the vegetation stage; wind speed; wind direction; mixing height (if available); temperature; and humidity.

Fire Summary

The Burn Leader shall summarize the conditions and quality of the fire, including type of fire used, fire escape problems, smoke behavior and impacts, immediate observed results of the prescribed burn, and any recommendations for future burning or management.

Impacts to the Site

The Area Manager shall summarize the short and long-term post-burn fire effects in relation to burn objectives on species and community responses as deemed necessary through a period of time identified in the Burn Plan. The summary should be well-documented and may include photographs.

Section 9: Wildfires, Escaped Prescribed Burns, and Reporting Requirements.

Any fire, regardless of ignition source, which is unplanned (other than minor slopovers), has escaped control, or is not authorized under state law or local ordinances, is considered a wildfire. An escaped fire is when there is fire outside the prescribed burn perimeter that requires additional resources beyond those planned to be on-site in the Burn Plan, or which causes significant property damage. Fire that crosses the fire line and is contained with resources on-site is not an escaped fire.



Every DNR Burn Plan must include a *Contingency Plan* (e.g., trigger points, water sources, other firefighting resources available, emergency contact numbers, rendezvous locations, safety zones, etc) that addresses what action must be taken in the case of a wildfire resulting from the DNR's activities. In the event of unplanned or escaped fire, once the emergency is past and the fire is extinguished, the Burn Leader will notify his/her immediate supervisor of the event and will provide the supervisor with copies of the Burn Plan, Pre-Burn Checklist and Go/No-Go Checklist, and the Burn Report, along with any other supporting documentation that may be necessary to investigating the event and providing to legal counsel if necessary.

Prescribed Fire Accomplishment Reporting

Bi-Annually, at the end of June and November, each Burn Leader is responsible for preparing and submitting a seasonal report showing their prescribed burn accomplishments.

Attachment F: Iowa Prescribed Fire Report Form will be used to report the data for each prescribed fire. This report is to be sent to the Division of Forestry – Fire Supervisor.

Wildfire Reporting

Generally, wildfire reports are submitted by the responding fire departments. However, if any DNR activities result in a wildfire, the Burn Leader shall complete *Attachment G: Iowa Wildfire Report Form* and submit it to the Division of Forestry – Fire Supervisor.

Section 10: Special Considerations for DNR Assistance on Private Lands

DNR supports and encourages the use of prescribed fire on private lands and other public lands when used for habitat or forest management goals which are consistent with the State Wildlife Action Plan or the Forest Resource Assessment and Response Plan. Burning on private lands enhances DNR activities on adjacent lands under its jurisdiction, allows for valuable demonstration of its benefits, and promotes natural and native habitat development, all of which benefit Iowa.

DNR personnel may assist in the planning, permitting, execution and report writing for prescribed burns conducted on private lands. An approved Burn Plan is required for DNR staff to participate in a prescribed burn on private property, the prescribed burn must be lead by a qualified Burn Leader and the execution of the burn must otherwise conforms to the requirements of this Policy. In addition, for DNR to conduct prescribed burns on private lands, DNR must inform the landowner that they are liable for their own acts and should encourage landowners to contact their insurance providers to discuss whether damages arising from or related to prescribed burns are covered within their policies and to make appropriate changes. The state and DNR shall be liable only for their own acts, only as legally allowed under the Iowa Constitution and Iowa Code chapter 669. The DNR in no way waives its sovereign immunity or discretionary function defense by participating in prescribed burns on private lands.

Nothing in this Policy prohibits DNR personnel from participating in prescribed burns on private lands on their own time. However, in doing so, those DNR personnel are not acting in an official capacity and are not, therefore, protected from liability by the Iowa Tort Claims Act.

Section 11: Smoke Management

The DNR shall strive to ensure the goals of the Clean Air Act are satisfied in these small-scale burns.

The U.S. Environmental Protection Agency (EPA) is in the midst of revising federal rules and guidelines for prescribed burning to address current and expected air pollution standards. Concurrently, the DNR Air Quality Bureau is evaluating the need for a state-wide Smoke Management Program (SMP) and is also considering amending state air quality rules to specifically address prescribed natural resource burning. At such time as a state-wide SMP or new air quality rules are final and effective, this Policy may be revised, if appropriate. Until then,

each DNR Burn Plan shall include a smoke management plan that addresses the following elements:

1. Actions to minimize smoke impacts
2. Smoke dispersion map
3. Notifications
4. Smoke monitoring

These elements and other recommendations for basic smoke management practices are described in more detail in *Attachment B, Smoke Management Guidelines*. Smoke management planning should also address potential effects of smoke on prescribed fire crew members.

Air Quality & Smoke Management Resources:

- **EPA AIR NOW website:** <http://airnow.gov/>: Includes interactive maps showing current national, regional, state and local air quality. Includes links to other air quality resources.
- **NWS Fire Weather Planning Forecast website:** <http://www.crh.noaa.gov/dmx/firewx.php> or www.weather.gov/dmx (click on Fire Weather link): Get fire weather and smoke management information for Iowa, including transport wind, mixing height, relative humidity and smoke dispersion. Request a spot forecast and get other fire weather information.
- **NWCG Smoke Management and Smoke Committee websites:** <http://www.nifc.gov/smoke/> and www.myfirecommunity.net (join the Air Quality and Fire Issues group): Sharing information on smoke management issues, air quality regulations, strategies for managing smoke from wildland fires, approaches to technical smoke questions, and fire environment issues that affect smoke generation, transport, impacts and measurement. Links to other smoke management resources.
- **DNR Air Quality Bureau:** Go to www.iowacleanair.com or www.iowadnr.gov/air/ or call 515-242-5100.

Section 12: Legal Requirements

DNR prescribed burns will comply with all applicable federal, state and local laws, ordinances, regulations or emergency declarations. A discussion of relevant legal considerations and a list of relevant laws are available in *Attachment E* of this Policy.

Section 13: Attachments

The documents attached to this Policy shall be used by the burn plan writer, the Burn Leader and the Area Manager in developing and executing DNR-sponsored prescribed burns in the state of Iowa.

- A. Prescribed Burn Plan Form
- B. Smoke Management Guidelines
- C. Pre-Burn Checklist and Go/No-Go Checklist
- D. Burn Report Form
- E. List of applicable laws
- F. Iowa Prescribed Fire Report Form
- G. Iowa Wildfire Report Form



ATTACHMENT A

PRESCRIBED BURN PLAN

A. Background Information

Photo Record Taken? _____

Area or site name:

Location:

Record of previous burn management:

Topography:

Vegetation description (target species):

Threatened or Endangered Species:

B. Objectives

Objectives of the burn (clearly state):

C. Site Specific Information

Target burn dates (range):

Segment to be burned (attach map or aerial photo):

Attached maps will include the following:

- Location of site within the county
- Property boundaries
- Access and Trails
- Targeted Burn sites
- Smoke Sensitive Area
- Species of Concern (plant/animal)
- Alternative local water source / dry hydrants
- Firebreaks already present or that will be developed, alternative firebreaks, and who will be responsible to develop them
- Adjacent land use/fuels
- Proposed ignition pattern

Minimum # of Personnel:

Equipment needed:

Preferred wind and weather conditions:

Communication needs &

Radio Frequencies to be used:

Special Regulations; permits needed; etc:

Safety concerns:

Smoke Management Plan (*refer to Smoke Management Guidelines – Attachment B*):

Emergency Response Notifications

Contact:	Location	Phone #	Who Will Notify?	By When?
Fire Department:				
Public Safety Com. Center (Dispatch)				
Medical Emergency Facility				
Environmental Services Division – Field Office				
Other				

Additional Notifications:

Adjacent Landowners:	Location	Phone #	Who Will Notify?	By When?

Potential Downwind Smoke Receptors:	Location	Phone #	Who Will Notify?	By When?

*Guidelines for notifying adjacent landowners and other potential downwind receptors are explained in *Attachment B – Smoke Management Guidelines*.

Mop-Up Instructions:

Contingency Plans:

Attachment B
Smoke Management Guidelines
Date: March 5, 2010

Smoke management is becoming a larger concern with respect to public health and environmental quality. The DNR shall strive to ensure the goals of the Clean Air Act as enacted through the DNR's regulatory authority are satisfied in these small-scale natural resource burns.

The following smoke management guidelines are recommendations. The guidelines are not inclusive of all smoke management techniques and are not meant to limit prescribed burning activities. Rather, these guidelines are intended as interim recommendations until such time as the U.S. Environmental Protection Agency (EPA) or the Iowa DNR Air Quality Bureau (AQB) promulgates rules, policies or guidelines to specifically address natural resource burning and smoke management.

Additionally, AQB is currently evaluating the need for a statewide Smoke Management Program (SMP) and is considering amending state air quality rules for open burning to specifically address prescribed natural resource burning. At such time as a statewide SMP or new air quality rules for prescribed burning become final and effective, these guidelines may be revised, if appropriate.

Smoke Management Plan (Basic Smoke Management Practices)

Each DNR prescribed burn plan (Burn Plan) shall include a smoke management plan that describes the basic smoke management practices to be employed for the prescribed burn. The designated Burn Leader shall ensure that all DNR staff, volunteers and contractors participating in the prescribed burn adhere to the smoke management plan.

Each smoke management plan included in a DNR Burn Plan shall address the following elements:

1. Actions to minimize smoke impacts
2. Smoke dispersion map, including:
 - Predicted smoke behavior
 - Expected smoke dispersion area
 - Smoke sensitive sites within the smoke dispersion area
3. Notifications
4. Smoke monitoring

1. Actions to minimize smoke impacts

The DNR will take appropriate and reasonable actions to keep smoke away from smoke sensitive sites. Examples of smoke sensitive sites include: residential dwellings, businesses, schools, airports, nursing homes, childcare facilities, livestock facilities, hospitals, and roads. The Burn Plan should describe how smoke impacts to the public will be minimized or mitigated before, during, and after the burn.

Depending on the objectives of the burn and current weather and fuel conditions, mitigation techniques may include, but are not limited to, the following:

- Reduce the fuel loading in the burn area by mechanical means
- Reduce the size of the burn area
- Use frequent, low-intensity burns to gradually reduce fuels
- Reduce the amount of fuel consumed by the fire by burning when fuel moistures for larger fuels are high

- Rapid and complete mop-up after the burn or mop-up of certain fuels.

In addition to providing notification of the burn (see #3 below), DNR may, as appropriate, include in its notification suggested actions that smoke sensitive individuals may take to minimize their exposure. Suggestions may include, but are not limited to: leaving the area during the burn, remaining indoors, avoiding rigorous activities, and avoiding exposure to other respiratory stressors.

If the National Weather Service (NWS) has issued an air pollution alert, the Burn Leader will be prepared to safely halt the burn at the closest existing fire break and will not ignite any additional burns until the NWS has lifted the air pollution alert.

2. Smoke Dispersion Map

Each Burn Plan should include a smoke dispersion map. The purpose of the smoke dispersion map is to assist the burn plan writer, the Burn Leader and other prescribed burn participants in determining proper smoke mitigation options, estimating smoke dispersion, establishing the public notification area, and selecting appropriate smoke monitoring activities.

In general, the smoke dispersion map should identify adjacent land owners and all downwind smoke sensitive sites that are could experience smoke from the prescribed burn. A description accompanying the map should explain how the burn plan writer estimated the smoke dispersion area for the burn. If the burn plan writer has determined that a smoke dispersion map is not necessary, the Burn Plan shall include an explanation of why a smoke dispersion map is not needed.

Predicted smoke behavior

There are many methods for predicting smoke behavior from prescribed natural resource burning. As of the date of this Policy, the U.S. Environmental Protection Agency (EPA) has not officially recommended or approved specific tools or models for estimating air quality impacts from prescribed natural resource burning. However, the U.S. Forest Service (USFS) and other federal land management agencies have developed several tools for smoke prediction and for estimating the air quality impacts from prescribed burns.

AQB Analysis

Air quality impacts from prescribed burns are affected by numerous factors, including, but not limited to: fuel characteristics, fuel conditions, size of the burn area, meteorological conditions and burning techniques. To assist in estimating possible air quality impacts from prescribed burns in Iowa, AQB staff collaborated with both DNR and non-DNR prescribed burn professionals and USFS smoke prediction experts to develop an air quality analysis.

Because of the numerous variables inherent in prescribed burning, the analysis necessitated making a number of assumptions. Additionally, the analysis was specifically designed to produce results that are conservative. The analysis is best used as a tool in conjunction with actual, on-site fuel bed information and based on the expected meteorological conditions on the day of the burn.

AQB analyzed eight Iowa burn scenarios using USFS software to estimate air pollution concentrations. Based on the air quality analysis, it is recommended that the DNR consider notification of the smoke sensitive sites located downwind and within the distance specified for the following burn scenarios:

- Prairie burn (1 acre or less) = 0.25 miles from the burn area.
- Prairie burn (1.5 acres -10 acres) = 1 mile from the burn area.
- Prairie burn (10.5 acres -50 acres) = 1.5 miles from the burn area.

- Prairie burn (50.5 acres -100 acres) = 2 miles from the burn area.
- Prairie burn (over 100 acres) = 3 miles from the burn area.
- Forest burn (5 acres or less) = 1.5 miles from the burn area.
- Forest burn (5.5 acres -10 acres) = 2.5 miles from the burn area.
- Forest burn (10.5 acres - 50 acres) = 4 miles from the burn area.
- Forest burn (50.5 acres -100 acres) = 5 miles from the burn area.

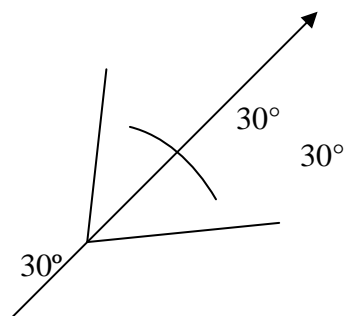
Note: With the exception of the 1 acre prairie scenario, the acreages and distances from the air quality analysis are shown here rounded to nearest half acre and half mile. Additionally, the scenario "Prairie Burn (over 100 acres)" was not included in the air quality analysis, but was very generally estimated based on the results from the other, modeled scenarios.

AQB's complete analysis, including descriptions of the USFS software, the assumptions used for the analysis, and the software inputs and outputs for the analysis, is available from AQB upon request.

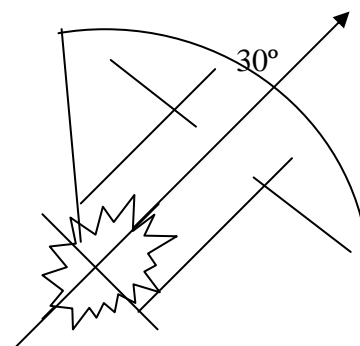
Smoke Dispersion Area

The goal of proper smoke management is to perform the burn when atmospheric conditions will disperse the smoke so that air quality standards to protect public health will not be violated. Unless the burn plan writer has determined that it is unnecessary, the Burn Plan should include a map showing the expected smoke dispersion area. One method that may be used to determine the smoke dispersion area is as follows:

1. Locate on a map the prescribed fire and all potential smoke sensitive sites that could be affected. The distances indicated above from the air quality analysis may be used. However, a site-specific analysis or other factors may indicate that an alternative distance is more appropriate.
2. Determine the optimal transport wind (wind direction) for the burn that will, to the extent practicable, have the least impact on smoke sensitive sites while also achieving the natural resource objectives for the burn.
3. Draw a line representing the centerline of the path of the smoke plume using the optimal transport wind identified in the previous step.
4. To allow for horizontal dispersion of the smoke, as well as shifts in wind direction, draw two other lines from the burn at an angle of 30 degrees from the centerline(s). If a prescribed fire is represented as a spot, draw as in Figure A. If larger, draw as shown in Figure B.



A



B

Smoke sensitive sites

All smoke sensitive sites within the predicted smoke dispersion area should be identified on the smoke dispersion map.

Other considerations for smoke dispersion and smoke sensitive sites

Each Burn Plan should indicate how the Burn Leader will assess meteorological and air quality conditions prior to the burn and on the day of the burn to ensure that conditions are within prescription and that impacts to smoke sensitive sites will be minimized.

A valuable resource for smoke management planning and meteorological information is the National Weather Service (NWS) Fire Weather Planning program. This easy to access forecast provides specific burn parameters essential for smoke management, such as transport winds, precipitation, temperature, relative humidity and smoke dispersion. Another available resource to check air quality conditions prior to and on the day of the burn is EPA's AIR NOW website.

3. Notifications

As an essential aspect of basic smoke management techniques, DNR shall make a reasonable effort to notify all adjacent land owners and other smoke sensitive sites identified on the smoke dispersion map. A description of the notification strategy shall be included in the Burn Plan.

The DNR shall provide pre-burn season notification to adjacent land owners and smoke sensitive sites in the area. The DNR shall determine the best notification method for the affected area and shall establish how far in advance the pre-burn season notification shall occur. Pre-burn season notification methods may include, but are not limited to: press releases, radio or TV announcements, newsletter articles (electronic or hard-copy), website postings, in-person notification, phone notification, USPS notification, e-mail notification or hand-delivered notification. In some cases, it may be appropriate to provide follow-up notification closer to the anticipated burn date to adjacent land-owners and other smoke sensitive sites. Examples of other smoke sensitive sites that should be considered for follow-up notification closer to the anticipated burn date include sites occupied by citizens who expressed health-related concerns to the DNR in response to the pre-season notification, as well as schools, day cares, hospitals, churches, and retirement or nursing homes..

The DNR shall also coordinate to the extent practicable with the immediate Environmental Services Division (ESD) Field Office to notify the field office prior to the burn. This notification ensures that field office staff is knowledgeable of the burn and can work cooperatively with the burn crew and the public if the field office receives complaints.

4. Smoke Monitoring

The Burn Plan shall include a description of how the burn crew will monitor the smoke plume during the burn to ensure that unanticipated smoke impacts do not occur. Smoke monitoring will help ensure that any needed mitigation activities will be underway as quickly as possible.

Smoke monitoring should match the size of the fire. For small or short duration fires (less than one day), such as most prairie burns or small forest burns, visual monitoring of the smoke plume and monitoring complaints from the public should be sufficient. Other monitoring techniques may include, but are not limited to:

- Posting personnel at vulnerable roadways to look for visibility impacts;
- Posting personnel at other smoke sensitive areas to look for smoke intrusions;
- and
- Continuous tracking of meteorological conditions (such as spot forecasting) during the fire.

Air Quality & Smoke Management Resources:

- **EPA AIR NOW website** - <http://airnow.gov/>: Includes interactive maps showing current national, regional, state and local air quality. Includes links to other air quality resources.
- **NWS Fire Weather Planning Forecast website** - <http://www.crh.noaa.gov/dmx/firewx.php> or www.weather.gov/dmx (click on Fire Weather link): Get fire weather and smoke management information for Iowa, including transport wind, mixing height, relative humidity and smoke dispersion. Request a spot forecast and get other fire weather information.
- **NWCG Smoke Management and Smoke Committee websites** - <http://www.nifc.gov/smoke/> and www.myfirecommunity.net (join the Air Quality and Fire Issues group): Sharing information on smoke management issues, air quality regulations, strategies for managing smoke from wildland fire, approaches to technical smoke questions, and fire environment issues that affect smoke generation, transport, impacts and measurement. Links to other smoke management resources.
- **DNR Air Quality Bureau website**- www.iowacleanair.com or www.iowadnr.gov/air/: Or call 515-242-5100
- **DNR ESD Field Services Bureau website**- www.iowadnr.gov/fo/index.html: Includes list of ESD field offices and their jurisdictions.
- **USFS Fire and Environmental Research website** – <http://www.fs.fed.us/pnw/fera/>: Research and development in fuels and combustion science including tools and software for predicting fire behavior and air pollutant emissions from prescribed burning.

ATTACHMENT C

PRE-BURN CHECKLIST, CREW BRIEFING and GO/NO-GO DECISION

Unit Area: _____ Fire Site: _____ Date: _____

Number of people participating in burn: _____

A. PRIOR TO CREW BRIEFING

- ☐ Fire Site is as described in plan.
- ☐ Required firebreaks complete.
- ☐ Permits obtained if required.
- ☐ Communications Center/fire officials notified.
- ☐ Neighbor notifications, as needed.
- ☐ Required equipment is on-site and functioning.
- ☐ Radio frequencies to be used are identified.
- ☐ Planned ignition and containment methods are appropriate.
- ☐ List of emergency phone numbers are available.
- ☐ Planned contingencies and mop-up are appropriate.

List Names & Agency:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

B CREW BRIEFING

- ☐ Fire Site size and boundaries discussed.
- ☐ Fire Site hazards discussed.
- ☐ Anticipated fire and smoke behavior.
- ☐ Review of equipment and troubleshooting.
- ☐ Review organization of crew and assignments.
- ☐ Review methods of ignition, holding, mop-up, communications.
- ☐ Radio frequency check.
- ☐ Review public traffic concerns.
- ☐ Location of vehicles, keys and nearest phone or police band radio.
- ☐ Location of back-up equipment, supplies and water.
- ☐ Plan and review all contingencies including safety hazards, escape routes, safety zones.
- ☐ Answer questions from crew.
- ☐ Give crew members the opportunity to decline participation.
- ☐ Location of first aid kit.

C. PRIOR TO IGNITION GO / NO-GO DECISION

- ☐ Weather and fuel conditions are within prescriptions.
- ☐ Weather forecast, obtained prior to ignition indicating suitable burning conditions.
- ☐ Necessary fire lines/breaks are constructed and checked.
- ☐ Crew members have required protective clothing.
- ☐ Crew members have matches.
- ☐ Conduct test burn.
- ☐ In your opinion, can the burn be carried out according to the plan and will it meet the planned resource management objectives? YES _____ NO _____

D. BEFORE LEAVING BURN UNIT

- ☐ Mop-up completed as described in prescription.
- ☐ Post burn inspection arranged.
- ☐ Notifications of completed burn (if required).

E. NOTE ANY MODIFICATIONS TO PRESCRIPTION

Burn Leader: _____

Date: _____

ATTACHMENT D

BURN REPORT

A. Operational Data

Date of prescribed burn:	<input type="text"/>	Acres burned:	<input type="text"/>
Time set:	<input type="text"/>	Time completed:	<input type="text"/>
		Time mop-up completed:	<input type="text"/>
Fire planner name:	<input type="text"/>		
Fire leader name:	<input type="text"/>		
Total number personnel in fire crew:	<input type="text"/>		

B. Weather & Vegetation Conditions

Vegetation stage (cured, transitional, green):	<input type="text"/>		
Wind speed at start:	<input type="text"/>	Wind speed at completion:	<input type="text"/>
Wind direction at start:	<input type="text"/>	Wind direction at completion:	<input type="text"/>
Temperature at start:	<input type="text"/>	Temperature at completion:	<input type="text"/>
Humidity at start:	<input type="text"/>	Humidity at completion:	<input type="text"/>

C. Fire Summary

Type fire used (head, back, strip back, ring, combination):	<input type="text"/>
Fire escapes or problems of note:	<input type="text"/>
Summarize immediate results (litter reduction, areas of incomplete burn, etc.):	<input type="text"/>
Recommendations for future burning or management:	<input type="text"/>

Burn report completed by: _____ (signature) _____ (date)

ATTACHMENT E

Legal Requirements

Authority for Prescribed Burns

Prescribed burns are open burns allowed pursuant to 567 Iowa Administrative Code section 23.2(d). Burns that involved cleared materials may not occur closer than ¼ mile from any building inhabited by other than the landowner or tenant conducting the burn. Additional disaster declarations may allow for additional burning if an emergency condition exists.

The air quality rules for open burning are set forth under 567 Iowa Administrative Code (IAC) Chapter 23 (rule 567-23.2). Copies of the current rule provisions and definitions applicable to open burning are available on the DNR Air Quality Bureau (aqb) website at www.iowacleanair.com (click on “open burning” on the left-side menu). DNR aqb does not issue burn permits.

Currently, prescribed natural resource burning is allowed under the “landscape waste” exemption (paragraph 23.2(3)“d”) in most areas of the state, unless prohibited as noted below or unless prohibited under local ordinances or regulations. DNR aqb is considering amending the open burning rules to specifically address prescribed natural resource burning.

General Prohibitions

Locations

Prescribed burns generally may not occur in the cities of: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill. The Burn Leader must contact the Department’s Air Quality Bureau if planning to conduct burns within those cities.

In addition, any local government entity, such as a municipality or a county, may enact local open burning regulations that are more stringent than state open burning rules. Local governments are not required to notify DNR of any such local ordinances. In particular, Linn County and Polk County have their own, state-approved air quality programs and require permits for most open burning activities. DNR is also aware that Council Bluffs has a burn permit program. DNR staff writing and approving burn plans should check with local governments regarding local open burning ordinances and regulations. The Burn Leader is responsible for overseeing compliance with local ordinances and regulations related to prescribed burning.

Materials

Prescribed burns may not include the burning of asbestos, rubber tires or other hazardous materials. If asbestos are found in any structure that is part of a prescribed burn, the Burn Leader must contact the Department’s Realty Services Bureau, who will then work with the Department’s Air Quality Bureau to safely remove the asbestos prior to the prescribed burn. No prescribed burn shall occur until the asbestos has been removed and properly mitigated.

Deleterious Impacts to Water Quality

Prescribed burning activities are intended to promote a healthy environment and should not create or contribute to water quality defects in the state. While the DNR is not required to obtain NPDES permits for prescribed burns (unless the burning is part of a construction project, in which case the project may require a permit), the DNR is prohibited from undertaking activities that would cause pollutants to enter into waters of the state. Information about pollution prevention and best management plans are available by contacting the Environmental Services Division field office in the area.

Threatened and Endangered Species

During the development of a Burn Plan and prior to the initiation of any prescribed burn, the Burn Leader shall check the Threatened and Endangered species data base and review other local observation data to determine whether T & E species are present in the burn area. If T & E species are present, burn plans require consultation with the Threatened and Endangered species Program Office.

Required Permits

The DNR, the Fish and Wildlife Service and the State Historical Preservation Office (SHPO) have a programmatic agreement that addresses our compliance with Section 106 of the National Historical Preservation Act. Under this agreement prescribed burn activities using accepted prescribed burn techniques do not require SHPO review.

Linn and Polk Counties and the City of Council Bluffs have air quality programs that require air permits for prescribed burns. The Burn Leader must contact those permitting entities and obtain all necessary permits from those local authorities prior to conducting a burn in either Linn or Polk County.

Building Disposal

Building disposal by burning is not considered to be a component of prescribed burning and is not addressed in the DNR Burn Policy. Refer to 567 Chapter 23 (rule 567-23.2), or contact the DNR Air Quality Bureau for more information.

List of Applicable Laws

(As of Date)

City:

- City of Council Bluffs Open Burning Ordinance – Council Bluffs Municipal Code section 4.02.020

County:

- Linn County Open Burning Ordinance – Linn County Ordinances section 10.10
- Polk County Open Burning Rules – Polk County Board of Health Rules and Regulations section 5-7

State:

- Air Quality Duties of Environmental Protection Commission – Iowa Code section 455B.133
- Liability of Landowner Allowing Public Use of Private Property – Iowa Code section 461C.3
- Liability of State Employees under State Tort Claims Act – Iowa Code sections 669.21 and 669.23
- Liability of State Volunteers under State Tort Claims Act – Iowa Code section 669.24
- Open Burning, including building disposal – 567 Iowa Administrative Code section 23.2
- State Threatened and Endangered Species Act – Iowa Code chapter 481B and 571 Iowa Administrative Code chapter 77

Federal:

- Clean Air Act (CAA) – 42 U.S.C. chapter 85
- National Emission Standard for Hazardous Air Pollutants (NESHAP) – 40 C.F.R. part 61
- National Environmental Policy Act (NEPA) – 42 U.S.C. chapter 55
- National Primary and Secondary Ambient Air Quality Standard (NAAQS) – 40 C.F.R. part 50
- Protection of Historic Properties – 16 U.S.C. 470 and 36 C.F.R. Part 800



IOWA PRESCRIBED FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak

FAX: 515-233-1131 or

E-MAIL: Gail.Kantak@dnr.iowa.gov

Agency/ Bureau:			Location of Fire (GPS location if available):
Unit:			
Contact:			
Phone:			
Cell:			
E-Mail:		Type of Fire:	PRESCRIBED FIRE
Date of Fire:		Vegetation Type:	
Acres Burned:		NOTES / COMMENTS:	
NAME OF PEOPLE PARTICIPATING ON BURN (For Incident Qualifications (IQS) Tracking):			



IOWA PRESCRIBED FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak

FAX: 515-233-1131 or

E-MAIL: Gail.Kantak@dnr.iowa.gov

Agency/ Bureau:			Location of Fire (GPS location if available):
Unit:			
Contact:			
Phone:			
Cell:			
E-Mail:		Type of Fire:	PRESCRIBED FIRE
Date of Fire:		Vegetation Type:	
Acres Burned:		NOTES / COMMENTS:	
NAME OF PEOPLE PARTICIPATING ON BURN (For Incident Qualifications (IQS) Tracking):			

IOWA WILDLAND FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak

2404 S Duff Ave, Ames, IA 50010

FAX: 515-233-1131; PHONE: 515-233-8067 or 1161

E-MAIL: Gail.Kantak@dnr.iowa.gov

1. State: IOWA	2. County:	3. Fire Department:
4. Contact:	5. Location of Fire:	
Phone:		
E-Mail:		
6. Date of Fire:	7. # & Type of apparatus used:	

8. FIRE CAUSE

a. Lightening

b. Campfire

c. Smoking

d. Debris Burning
(Controlled Burn that got out of control)

e. Arson

f. Equipment Use

g. Railroads

h. Children

i. Miscellaneous

j. Controlled Burn that
DID NOT get out of control

LINE #

TOTAL ACRES BURNED

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

9. INJURIES:

10. NOTES: