

GWINNETT COUNTY GOVERNMENT

HERBICIDE USE PLAN

INTRODUCTION

The improper use, storage or disposal of herbicides can cause environmental damage and threaten water supplies by contaminating waterways and potentially harming people and wildlife. This *Herbicide Use Plan* (hereafter “plan”) forms a part of Gwinnett County’s Comprehensive Storm Water Management Program and has been developed and will be implemented in order to secure compliance with the county’s National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. It is anticipated that the implementation of this plan will assist the county in preventing to the maximum extent practicable any potential water quality degradation that may be caused by the county’s use of herbicides.

The Department of Water Resources, Stormwater Management Division accepts responsibility on behalf of Gwinnett County for the development and maintenance of this plan, however implementation actions will be the responsibility of those individual departments who use herbicides. All county departments should be aware that the NPDES MS4 permit which requires the development and implementation of this plan is a requirement upon Gwinnett County as a governmental entity and not exclusively upon any one department.

For the purposes of this plan an herbicide shall be defined as any pesticide used to kill, limit or regulate the growth of any plant material. Practically this will include but not be limited to such common products as RoundUp, Weed and Feed, broadleaf weed killers and other similar products.

Section 1. HERBICIDE INVENTORY

- (1) An inventory of herbicides used by Gwinnett County departments, including specific uses and estimated quantities used, is included in Appendix 1 to this plan. The following Gwinnett County departments use herbicides routinely:
 - a) Department of Water Resources;
 - b) Parks and Recreation Department;
 - c) Department of Support Service; and
 - d) Department of Transportation (hereafter “departments”.)
- (2) Departments will notify the Department of Water Resources, Stormwater Management Division within 7 days of any significant (> 50% increase or decrease in volumes of herbicide to be used or stored) changes to the inventory as described in Appendix 1. Insignificant (< 50% increase or decrease) changes may be reported on an annual basis during the annual review of the plan.
- (3) During the second quarter of each calendar year the Stormwater Management Division will facilitate a review and update of the herbicide inventory and content of the herbicide use plan for the purpose of incorporating any necessary changes,

however it will be the responsibility of each department to ensure that the inventory within Appendix 1 is kept current by notifying Stormwater Management Division of any changes.

- (4) Restricted Use Herbicides are noted within the inventory.

Section 2. MATERIAL SAFETY DATA SHEETS (MSDSs) & PRODUCT LABELS

- (1) MSDSs and/or product labels for all herbicides used by Gwinnett County will be collated and attached within Appendix 2 of this plan. Where the MSDS or product label does not provide information about the formulation of the products, information on how to recognize the chemical constituents, and/or directions and precautions for applicators, such information will also be made available as an attachment to the relevant MSDS or product label contained within Appendix 2. The MSDS information included in Appendix 2 is additional to and is not intended to replace any obligations individual departments may have to display or make available MSDSs to affected employees.
- (2) Departments will provide the Department of Water Resources, Stormwater Management Division with a copy of the MSDS, product label, and if necessary additional information mentioned in sub-section (1) above, for each product used by their department and which is listed within the inventory attached within Appendix 1.
- (3) If a relevant MSDS or product label is updated or changed, it shall be the responsibility of the department who is using that herbicide to notify the Department of Water Resources, Stormwater Management Division of the change and provide a copy of the updated document so that the plan may be updated.

Section 3. HERBICIDE USE AND EQUIPMENT MAINTENANCE Best Management Practices

The misuse of herbicides has the potential to add pollutants to our waterways. The following Best Management Practices (BMPs) relating to the application, storage, handling, management and disposal of herbicides will be implemented in an attempt to minimize the discharge of herbicides to the County's MS4 and prevent water pollution to the maximum extent practicable.

3.1 Storage

- (1) All county employees who use herbicides will follow all product label directions and precautions.
- (2) Undiluted herbicides or herbicide concentrates will only be stored in their original containers and must have their labels intact. Damaged labels will be replaced.
- (3) Herbicides which have been diluted and are ready for use are not required to be labeled if they are used immediately by one person. Prepared herbicides must be labeled if used by more than one person and/or if they are to be used for more than one day or one shift. Photocopies of the original label with the word

“prepared” marked on the label are considered appropriate. Damaged labels must be replaced.

- (4) Prevent the need for storing and labeling prepared herbicide by only making up as much of the product as can be used within one day or shift.
- (5) All herbicides are to be stored on an impervious surface within a contained and covered area to prevent water pollution associated with leaks and spills. An adequate storage area will:
 - i. be capable of effectively containing 110% of the volume of the largest single herbicide container stored within the area; and
 - ii. effectively prevent the ingress of rainfall and stormwater surface runoff into the storage area. See *Gwinnett County Water Quality Guideline: WQ3 Secondary Containment Design and Operation Standards* for more information. A copy is attached in Appendix 7.

3.2 Handling

- (1) Product label directions and precautions will be followed by all county employees to ensure proper use.
- (2) Bulk (> 5 gallons of finished product) mixing and decanting of herbicide will be completed in a contained and covered area. Mixing and decanting of small amounts (less than 5 gallons of product in its final diluted form) of herbicide may be completed within a grassy area at least 50 feet away from any water body or impervious surface.
- (3) In an effort to minimize spills, closed handling systems will be used to transfer herbicides directly from a storage container to application equipment (through a hose, or funnel for example).
- (4) Where possible, rinsate collected during previous equipment cleaning should be used in mixing batches of the same product.
- (5) To protect against backflow, an air gap of at least 6 inches will be left between a potable water supply hose and the top of the application equipment tank. A potable water supply hose must never be submerged directly into any reservoir containing herbicide.
- (6) Filling of application equipment reservoirs must be actively supervised at all times.

3.3 Application

- (1) Product label procedures, instructions, directions and precautions will be followed to ensure proper application of the product.
- (2) All local, state and federal regulations regarding herbicide application procedures will be followed.
- (3) Application equipment will be checked carefully prior to use in an effort to identify leaking hoses or connections and obstructed or worn nozzles.
- (4) Spray equipment will be calibrated as necessary to achieve required distribution and application rates.
- (5) Herbicides will never be applied when rain is expected, during a rain event, or during windy conditions.

- (6) Appropriate application methods will be used to avoid excessive application of herbicides. See label for appropriate application methods.
- (7) Herbicides will only be used when absolutely necessary and their use will be limited wherever possible. Use of native and appropriate vegetation or other physical (rather than chemical) controls will be used when reasonable and practicable.
- (8) Records of the application of restricted use herbicides (RUH) will be maintained by departments as is required by state and federal regulations. At a minimum, records should be retained for 2 years.

3.4 Disposal

3.4.1 Herbicide Containers

- (1) After a container is emptied and prior to its disposal, empty containers should be triple rinsed to remove all residues from within. The rinsate should then be collected and poured into the appropriate application equipment reservoir. See the *Triple Rinsing Procedure* in Appendix 6.
- (2) After triple rinsing, empty herbicide containers may be properly disposed of with normal municipal trash unless the label indicates otherwise. Disposal should always be completed in accordance with all applicable federal, state and local regulations. See the memo from EPD attached in Appendix 3 for more details on disposal.
- (3) Herbicide containers must **not** be refilled or burned.
- (4) Herbicide containers should **not** be recycled with other general household type recyclables.
- (5) Plastic and metal containers should be recycled by approved recyclers whenever possible. USAg Recycling, Inc will collect containers for free upon request. For more information go to www.usagrecycling.com. Only dry, empty, properly rinsed containers are accepted at collection sites. See acceptable containers fact sheet attached in Appendix 6.

3.4.2 Herbicides

- (1) Unusable or unwanted herbicides must be disposed of properly. Waste herbicide is likely to be classified as hazardous waste. As such, waste herbicides **MUST** be handled by a hazardous waste contractor licensed to dispose of herbicides.
- (2) The GA Department of Agriculture, Pesticides Division periodically offers free herbicide disposal through its *Georgia Clean Day* program. For information on the next *Georgia Clean Day* contact the Pesticide Division of the GA Department of Agriculture: (404) 656-4958. Such herbicides should be stored in accordance with section 3.1 of this plan for disposal at the next *Georgia Clean Day*.
- (3) Waste herbicide must never be disposed of by pouring it into the sanitary sewer or into a storm drain.
- (4) Left over herbicide should be stored for later use and **MUST** not be poured onto the ground, into the sanitary sewer or into a storm drain.

3.4.3 Rinsate

- (1) Equipment used in the mixing, storage or application of herbicide must be cleaned in an equipment cleaning wash bay or sink that drains to the sanitary sewer.
- (2) Where possible rinsate should be collected and reused by placing it back into the application equipment reservoir.
- (3) Equipment rinsing stations should be used and maintained properly to minimize the potential for water pollution associated with these activities.
- (4) Equipment rinsing wash bays/sinks must be covered and contained.

3.5 Spill Management

- (1) Spills will be attended to immediately to minimize the potential that the spill may cause water pollution.
- (2) Spills of dry herbicide will be promptly swept up and reused.
- (3) Appropriate absorbent materials will be used to immediately contain and collect liquid herbicide spills.
- (4) Any county facility that stores one or more herbicide container(s) larger than 50 gallons in capacity (concentrated or diluted), will develop a written spill response plan. Such a plan should simply address methods to be used in controlling a spill, notification requirements and should be reviewed with relevant employees at least annually.
- (5) Educate all employees regarding the potential for water pollution associated with the use of herbicides.
- (6) Any spill that exceeds 50 gallons or is of any size and enters into a storm drain or waterway must be reported to Stormwater Management Division immediately. Please call 678-376-7000 (24 hours). Additional reporting under other regulations may also be necessary.

Section 4. INSPECTION AND MONITORING

- (1) Mulching, planting of native vegetation and other physical weed control methods will be employed where reasonable and practicable as a method of limiting the use of herbicides.
- (2) Areas in public rights-of-way and at facilities that require the application of herbicides will be inspected prior to first application and throughout the application period to ensure that application remains necessary. Herbicides will only be applied on county property when their use is determined to be necessary.

Section 5. LICENSING AND TRAINING PROGRAMS

5.1 Licensing

- (1) Gwinnett county employees are only authorized to apply herbicides to county owned or maintained land. County employees, while acting on behalf of the county, will not apply herbicides to private property and will not receive payment for such an application of an herbicide. This is not intended to restrict County

- employees who may be using these products as a part of a private business conducted outside of county work hours and not on behalf of the County.
- (2) Gwinnett County employees who use general use herbicides for the maintenance of county land are not required but are encouraged to obtain a “Commercial Pesticide Applicators License”. The required knowledge and skills needed to pass the exam for such a license will assist employees in the proper use and handling of general use herbicides.
 - (3) When “Restricted Use Herbicides” are used for the maintenance of county land, the county employee supervising the handling and application must possess a “Commercial Pesticide Applicators License” and will be responsible for the correct use and application of the herbicide.
 - a) A “Commercial Pesticide Applicators License” is required when purchasing any herbicide classified as “Restricted Use.”
 - b) All herbicides classified as restricted are clearly marked as “Restricted Use” on the product label and are contained within the inventory attached in Appendix 1.
 - (4) A list of county employees who hold state pesticide licenses is attached in Appendix 4.
 - (5) Departments will provide updates on the status of any employees that hold these licenses to the Stormwater Management Division at least annually so that this plan may be kept current.

5.2 Training

- (1) All county employees and contractors who use herbicides as part of their daily activities will watch a 10 minute educational video “Protecting Our Waterways: Herbicide Use” in order to understand the basic water quality issues associated with herbicide use.
- (2) County employees who use herbicides are encouraged to further their education regarding herbicide licensing requirements, use, handling, storage and disposal by attending the more extensive training classes offered by Gwinnett’s Cooperative Extension Service. Please contact the Extension Service for class availability by calling (678) 377-4010.
- (3) Gwinnett County Risk Management Division also offers a training course entitled “Hazard Communication.” This course is designed to teach employees how to read, understand and respond to MSDSs, use Personal Protective Equipment (PPE) and safely handle chemicals. All employees who use herbicides as a part of their work with the county are encouraged to attend this course. A list of employees who have attended this class is attached in Appendix 5.
- (4) A log of herbicide use training completed by county employees prior to June 13, 2007 is included in Appendix 5 of this plan.
- (5) Departments will provide updates on training completed by their employees to the Stormwater Management Division at least annually so that this plan may be kept current.

Appendix 1

Inventory of Herbicides Used by Gwinnett County

INVENTORY OF HERBICIDES USED BY GWINNETT COUNTY

Last updated: 06/13/07

Department of Water Resources

Product Name	Product Use	Location	Approximate Volume Used Annually	Maximum Volume Stored	Storage Location	Shelf Life	Restricted Use
Drexel Imitator Plus	Weed Control	Lanier FP, Shoal Creek FP Tanks and Bosster Stations	35 Gallons	35 Gallons	Lanier FP Warehouse	N/A	No
Super Killzall # 1520	Poison Ivy/Oak	WRF Plants, Pump Stations	135 Gallons	45 Gallons	Warehouse/Lower Storage Building	N/A	No

Department of Transportation

Product Name	Product Use	Location	Approximate Volume Used Annually	Maximum Volume Stored	Storage Location	Shelf Life	Restricted Use
Imitator Plus	Spraying Guard Rail on County ROW	County ROW	50 Gallons	90 Gallons	District 4	3 Months	No

Department of Support Services

Product Name	Product Use	Location	Approximate Volume Used Annually	Maximum Volume Stored	Storage Location	Shelf Life	Restricted Use
Round Up	Weed Control	GJAC and other building grounds	5 Gallons	2 Gallons	240 Oak Street Storage	2 Years	No

Parks and Recreation Department

Product Name	Product Use	Location	Approximate Volume Used Annually	Maximum Volume Stored	Storage Location	Shelf Life	Restricted Use
Round Up Concentrate	Grass and Weed Control	18 County parks	Varies	2 Gallons	Cabinets in Maintenance Sheds	2 years	No
Oryzalin 4 Pro Weed Killer	Distribute to parks and facilities	County parks and facilities	48 Jugs	24 Jugs	Warehouse	N/A	No
Killz-all Weed Killer	Distribute to parks and facilities	County parks and facilities	48 Jugs	24 Jugs	Warehouse	N/A	No

Appendix 2

Material Safety Data Sheets and Product Labels

MATERIAL SAFETY DATA SHEET

Drexel Chemical Co.
1700 Channel Avenue
Memphis, TN 38113

Emergency Telephone No.
(901) 774-4370
1-800-424-9300 (ChemTrec)

SECTION I – GENERAL INFORMATION

TRADE NAME	IMITATOR PLUS
CHEMICAL NAME	Isopropylamine salt of N-(phosphonomethyl) glycine
CHEMICAL FAMILY	Herbicide
EPA REG. NO.	19713-526
SIGNAL WORD	WARNING

SECTION II – INGREDIENTS (Class = H (Hazardous), NH (Non-Hazardous))

<u>NAME</u>	<u>CAS NO.</u>	<u>% (by wt.)</u>	<u>TLV</u>	<u>CLASS</u>
Glyphosate, Isopropylamine salt	38641-94-0	41.0	N/A	NH
Inerts	N/A	59.0	N/A	NH

SECTION III – PHYSICAL DATA

<u>Boiling Point</u>	ND	<u>Specific Gravity</u>	1.17 gms/cc
<u>Vapor Pressure</u>	ND	<u>% Volatiles</u>	Negligible
<u>Vapor Density</u>	N/A	<u>Solubility in Water</u>	Soluble
<u>pH</u>	4.99 (1% solution)	<u>Appearance/Odor</u>	Clear, viscous amber-colored solution, odorless

SECTION IV – FIRE & EXPLOSION DATA

Flash Point	N/A
Extinguishing Media	Water spray, foam, dry chemical, CO ₂ , or any class B extinguishing agent.
Fire Fighting Procedures	Fire fighters should use self-contained breathing apparatus and full protective clothing. Thoroughly clean equipment after use.

SECTION V – REACTIVITY DATA

Stability	Stable
Conditions to Avoid	None
Incompatibility	Spray solutions should be mixed, stored, or applied only in stainless steel, aluminum, fiberglass, or plastic containers.
Hazardous Decomposition Products	None
Hazardous Polymerization	Will not occur.

SECTION VI – HEALTH HAZARD DATA

Carcinogenicity	Non-carcinogenic
Toxicity Data	Oral LD50 (Rat) = >5,000 mg/kg Dermal LD50 (Rat) = >5,000 mg/kg
TLV	N/A
N.F.P.A.	Health: 0, Fire: 0, Reactivity: 0 (Rating: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Insignificant)
Effects of Overexposure	Not expected to produce skin sensitization.

SECTION VII – EMERGENCY PROCEDURES

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious or convulsing person.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes.

Inhalation: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control center or doctor for treatment advice. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION VIII- SPILL OR LEAK PROCEDURES

Steps to be taken in case of material leak or spill
For a spill less than one gallon on floor or other impervious surface, soak up with towels or other absorbent material and discard in trash. Clean the spill area with soap and water and rinse the area thoroughly. Large spills should be contained or diked and then absorbed with attapulgite, bentonite or other absorbent clays. Collect the contaminated absorbent, place in metal drum and dispose of in accordance with waste disposal method.
Waste Disposal Method
Dispose of in accordance with Local, State, and Federal Regulations.

SECTION IX – SPECIAL PROTECTION INFORMATION

Respiratory Protection	Avoid breathing vapor or spray mist.
Ventilation	No special precautions.
Protective Gloves	Rubber gloves
Eye Protection	Safety goggles.
Other	Long sleeved shirt, pants, shoes and socks.

SECTION X – SPECIAL PRECAUTIONS

Precautions To Be Taken In Handling & Storage
KEEP OUT OF REACH OF CHILDREN. FOLLOW LABEL DIRECTIONS CAREFULLY.

Avoid contact with skin and eyes.

D.O.T. Description	Non-Regulated
Freight Description	Agricultural Herbicide, Liquid, N.O.S.
Reportable Quantity	N/A
E.R.G. Guide Sheet	171

The information presented herein for consideration, while not guaranteed, is true and accurate to the best of our knowledge. No warranty, or guaranty is expressed or implied regarding the accuracy or reliability of such information and we shall not be liable for any loss or consequential damages arising out of the use thereof.

Date Prepared: 10-07-05

**Material
Safety
Data
Sheet**
**Hi-Yield® Killzall™ Weed & Grass Killer
(RTU)**
SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Name: Voluntary Purchasing Groups, Inc.	Box 460, Bonham, TX 75418
Emergency Telephone: (903) 583-5501 or (800) 424-9300 (Chemtrec)	
For Additional Information Contact: Product Manager or Chemtrec	Date Prepared: 03-14-03
Common Name (Used on Label): Hi-Yield® Killzall™ Weed & Grass Killer	Chemical Family: Does not apply
Chemical Name: Mixture	Formula: Does not apply
Trade Name & Synonyms: Hi-Yield® Killzall™ Weed & Grass Killer EPA # 7401-401-10159	

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT	CAS NUMBER	% (TYPICAL)	TLV (UNITS)	PEL (UNITS)
lisopropylamine salt of N-(phosphaonomethyl) glycine	38641-94-0	Proprietary	Not established	Not established

PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration.
TLV: Threshold Limit Value recommended by the American Conference of Governmental Industrial Hygienists.

SECTION 3 - PHYSICAL DATA

BOILING POINT (°F) Not determined	SPECIFIC GRAVITY (H ₂ O=1) 1.17 (active ingredient)	VAPOR PRESSURE (mm Hg) Not determined
PERCENT VOLATILE BY VOLUME (%) Not determined	VAPOR DENSITY (AIR=1) Not determined	EVAPORATION RATE (ethyl ether=1) Not determined
SOLUBILITY IN WATER Very soluble	REACTIVITY IN WATER Will not evolve flammable or toxic gases	
APPEARANCE AND ODOR Clear, amber colored liquid; slight amine odor.		

SECTION 4 - FIRE AND EXPLOSION DATA

FLASH POINT (°F) >200 degrees F (nonflammable)	FLAMMABLE LIMITS IN AIR (% by volume) Lower: <u>Not determined</u> Upper: <u>Not determined</u>	
EXTINGUISHING MEDIA Dry chemical, CO ₂ , water spray or foam	AUTO IGNITION TEMPERATURE Not determined	
UNUSUAL FIRE AND EXPLOSION HAZARDS Not determined		
SPECIAL FIRE FIGHTING PROCEDURES		

Use agents suitable for type of surrounding fire. Avoid breathing hazardous vapors. Keep upwind. Utilize self-contained breathing apparatus with full-face piece operated in pressure demand or other positive pressure mode.

SECTION 5 - HEALTH INFORMATION

PRIMARY ROUTES OF EXPOSURE AND TARGET ORGANS

Inhalation, eye and skin contact, ingestion

SIGNS AND SYMPTOMS OF EXPOSURE

(1) ACUTE OVEREXPOSURE

May cause eye, skin and mucous membrane irritation.

(2) CHRONIC OVEREXPOSURE

May cause irritation of the mucous membranes. Prolonged contact with skin may cause dermatitis. Eye contact may cause conjunctivitis.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Eye, skin, or respiratory disorders.

CHEMICAL/COMPONENT LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN

None

NTP

YES NO

IARC

YES NO

OSHA

YES NO

OTHER EXPOSURE LIMITS

Not determined

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician. **INGESTION:** Treat symptomatically and supportively. Get medical attention immediately. If vomiting occurs, keep head lower than hips to prevent aspiration. **EYE OR SKIN CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water. Wash clothing before reuse.

SECTION 6 - REACTIVITY DATA

STABILITY

Unstable Stable

CONDITIONS TO AVOID

Does not apply

INCOMPATIBILITY (Materials to Avoid)

Galvanized or unlined steel, polyethylene, plastic. May react with metal containers to produce flammable hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may release toxic oxides of nitrogen, phosphorous and carbon.

HAZARDOUS POLYMERIZATION

May Occur Will Not occur

CONDITIONS TO AVOID

Does not apply

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS LEAKED OR SPILLED

Collect spilled material and place in a labeled, nonmetal or stainless steel container for later reclamation or disposal. Comply with all applicable governmental regulations concerning spill reporting, handling, and disposal of waste.

WASTE DISPOSAL METHOD

Dispose of in accordance with Federal, State, and local regulations.

SECTION 8 - PERSONAL PROTECTION INFORMATION**RESPIRATORY PROTECTION**

NIOSH/MSHA approved respiratory devices to provide high efficiency protection against particulate matter and organic vapors.

VENTILATION

General or local exhaust to maintain employee exposure below the TLV/PEL.

PROTECTIVE GLOVES

Impervious gloves to prevent skin contact.

EYE PROTECTION

Splash-proof or dust resistant safety goggles to prevent eye contact with this substance. Contact lenses should not be worn.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

When necessary utilize impervious clothing and other equipment to prevent skin contact with this substance.

SECTION 9 - SPECIAL PRECAUTIONS**PRECAUTIONS TO BE TAKEN IN HANDLING & STORING**

Store in accordance with 40 CFR 165 recommended procedures for the disposal and storage of pesticide containers. Do not store in galvanized or unlined steel spray equipment, as it will react with metal causing a highly combustible gas.

OTHER PRECAUTIONS

Not determined.

SECTION 10 - OTHER INFORMATION

The information contained within was obtained from authoritative sources and is believed to be accurate for the manner in which the product is intended to be used. Other uses could result in ramifications, which are not included within this document.

MATERIAL SAFETY DATA SHEET

Hi-Yield® Super Concentrate KILLZALL Weed & Grass Killer

DATED: 03-14-03

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Name: Voluntary Purchasing Groups, Inc., P. O. Box 460, Bonham, Texas 75418
Emergency Telephone: (903) 583-5501 or (800) 424-9300 (Chemtrec)
For Additional Information Contact: Product Manager or Chemtrec
Common Name (Used on Label): Hi-Yield Super Concentrate KILLZALL Weed & Grass Killer
EPA# 67760-49-7401

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS:	CAS. Reg. #	Approx. %	TLV
AU-392-C	N/A Mixture	Less Than 15%	N/A
Glyphosate***	1071-86-6	41%	N/A

***Hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 19.10.1200)

SECTION 3 - PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT:	N/A	VAPOR PRESSURE (mm/Hg):	N/A
MELTING POINT:	N/A	VAPOR DENSITY (air=1):	N/A
SPECIFIC GRAVITY:	1.17 (Water - 1)	REACTIVITY IN WATER:	N/A

SOLUBILITY IN WATER: Soluble
APPEARANCE AND ODOR: Amber-colored solution; practically odorless to slight amine-like odor.

SECTION 4 - FIRE AND EXPLOSION DATA

FLASH POINT: >93°C (>200°F) (Pensky Martens closed tester)
FLAMMABLE LIMITS: N/A **LEL:** N/A **UEL:** N/A
EXTINGUISHER MEDIA: Water spray, foam, dry chemical, carbon dioxide or any class B extinguishing agent.
SPECIAL FIRE FIGHTING PROCEDURES: Fight fire upwind. Avoid heavy hose streams. Dike area to prevent water runoff. Firefighters and others that may be exposed to vapors, mists, or products of combustion should wear full protective clothing and self-containing breathing apparatus. Equipment should be thoroughly cleaned after use.

SECTION 5 - PHYSICAL HAZARDS (REACTIVITY DATA)

STABILITY: This product is stable for at least 5 years under normal conditions of warehouse storage.

CONDITIONS TO AVOID: None

INCOMPATIBILITY, MATERIAL TO AVOID: Do not mix, store or apply this product or spray solutions of this product in galvanized or unlined steel (except stainless steel) containers or spray tanks.
This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark welder's torch lighted cigarettes or other ignition source.

HAZARDOUS DECOMPOSITION PRODUCTS: None. However, the essential breakdown products are carbon monoxide, carbon dioxide, phosphorus pentoxide and nitrogen oxide.

HAZARDOUS POLYMERIZATION: Does not occur. This product can react with caustic (basic) materials to liberate heat. This is not a polymerization, but rather a chemical neutralization in an acid base reaction.

CONDITIONS TO AVOID (POLY): None

SECTION 6 - HEALTH HAZARDS

A. EXPOSURE LIMITS

OSHA Permissible Exposure Limit (PEL): Not Established
Threshold Limit Value (TLV): N/A

B. ROUTE OF ENTRY

Inhalation:	Yes	Eyes:	No
Ingestion:	No	Skin:	Yes

C. HEALTH HAZARD, ACUTE AND CHRONIC:

Eye Contact: May cause pain, redness and tearing based on toxicity studies.
Skin Contact: Is no more than slightly toxic and no more than slightly irritating based on toxicity studies.
Ingestion: Is no more than slightly toxic based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed. Ingestion of similar formations has been reported to produce gastrointestinal discomfort with irritation of the mouth, nausea, vomiting and diarrhea. Oral ingestion of large quantities of one similar product has been reported to result in hypotension and lung edema.
Inhalation: Is no more than slightly toxic if inhaled based on toxicity studies.

D. EMERGENCY FIRST AID PROCEDURES:

Eyes: Immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.
If Swallowed: This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.
Inhalation: Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

E. ADDITIONAL INFORMATION:

For additional human emergency first aid or treatment guidance, call 800-424-9300.

SECTION 7 - STORAGE AND DISPOSAL & SPILL/LEAK PROCEDURES

HANDLING: Do not get in eyes or on clothing. Avoid breathing vapor or spray mist. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Spray solutions of the product should be mixed, stored or applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined containers. **Do not mix, store or apply this product or spray solutions of this product in galvanized or unlined steel (except stainless steel) containers or spray tanks.** Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

STORAGE: Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or Local procedures. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned or destroyed. **DO NOT CUT OR WELD ON OR NEAR THIS CONTAINER.**

Plastic Containers: Do not reuse container. Triple rinse container. Then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

ACCIDENTAL RELEASE OF MATERIAL & WASTE DISPOSAL METHODS:

Small Spills on the floor or other impervious surface, should be soaked up with towels or other absorbent material and discard in the trash. Clean the spill area with soap and water and rinse the area thoroughly.

Large Liquid Spills on the floor or other impervious surface should be contained or diked and absorbed with attapulgite, benionite or other absorbent clays. Collect the contaminated absorbent, place in a metal drum and dispose of in accordance with applicable Federal, State or Local procedures. Thoroughly scrub floor or other impervious surface with a strong industrial detergent and rinse with water.

SECTION 8 - SPECIAL PROTECTION/CONTROL MEASURES

VENTILATION: No special precautions are recommended.

SPECIAL VENTILATION: N/A

Hi-Yield® Super Concentrate KILLZALL Weed & Grass Killer Material Safety Data Sheet
Page 3 of 3

EYE PROTECTION: Wear chemical splash goggles during mixing/pouring operations or other activities in which eye contact with the undiluted solution is likely to occur.

SKIN PROTECTION: Wear appropriate protective clothing to prevent skin contact. Applicators and other handlers must wear long-sleeved shirt, long pants, shoes plus socks and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

SECTION 9 - ENVIRONMENTAL EFFECTS DATA

This product has been shown to be slightly to moderately toxic in aquatic studies and has been shown to be practically non-toxic to avian species following subacute dietary exposure.

SECTION 10 - TRANSPORTATION DATA

PROPER SHIPPING NAME: N/A
DOT HAZARD CLASS/ID NO. N/A
D.O.T. HAZARD CLASS: N/A
U.S. SURFACE FREIGHT CLASSIFICATION: Weed killing compound, N.O.I.B.N

ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Voluntary Purchasing Groups, inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Voluntary Purchasing Groups, Inc. has been advised of the possibility of such damages.

MONSANTO Company
Material Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

ROUNDUP ORIGINAL[TM] Herbicide

EPA Reg. No.

524-445

Product use

Herbicide

Chemical name

Not applicable

Synonyms

None

Company

MONSANTO Company, 800 N. Lindbergh Blvd., St. Louis, MO, 63167
Telephone: 800-332-3111, **Fax:** 314-694-5557

Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: 314-694-4000 (collect calls accepted)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	41
Surfactant	61791-26-2	8
Water	7732-18-5	51

Trade secret composition.

OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200

3. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): / Liquid / Slight

WARNING!

Keep out of reach of children.

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

HARMFUL IF SWALLOWED

HARMFUL IF INHALED

REFORMULATION IS PROHIBITED

SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS

Potential health effects

Likely routes of exposure

Skin contact, eye contact

Eye contact, short term

Causes temporary eye irritation.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Refer to section 11 for toxicological and section 12 for environmental information

4. FIRST AID MEASURES

Eye contact

Immediately flush with plenty of water.

Continue for at least 15 minutes.

If easy to do, remove contact lenses.

If there are persistent symptoms, obtain medical advice.

Skin contact

Wash affected skin with plenty of water.

Wash clothes before re-use.

Take off contaminated clothing, wristwatch, jewellery.

Inhalation

Remove to fresh air.

Ingestion

Immediately offer water to drink.

Do NOT induce vomiting unless directed by medical personnel.

If symptoms occur, get medical attention.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE FIGHTING MEASURES

Flash point

Does not flash.

Extinguishing media

Recommended: Water, dry chemical, carbon dioxide (CO₂), foam

Unusual fire and explosion hazards

None.

Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), nitrogen oxides (NO_x), phosphorus oxides (P_xO_y)

Fire fighting equipment

Self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protection recommended in section 8.

Environmental precautions

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimize spread.

Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up

SMALL QUANTITIES:

Flush spill area with water.

LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimize use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Handling

Good industrial practice in housekeeping and personal hygiene should be followed.

Avoid contact with skin and eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Emptied containers retain vapour and product residue.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Emptied containers retain vapour and product residue.

FOLLOW LABELED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

Storage

Compatible materials for storage: stainless steel, aluminium, plastic, fibreglass, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.

Surfactant	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

Engineering controls

Have eye wash facilities immediately available at locations where eye contact can occur.

Eye protection

If there is potential for contact:
Wear chemical goggles.

Skin protection

If repeated or prolonged contact:
Wear chemical resistant gloves.

Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Form:	Liquid
Odour:	Slight
Flash point:	Does not flash.
Specific gravity:	1.1655 @ 20 °C / 15.6 °C
pH:	4.4 - 5.0
Partition coefficient (log Pow):	< 0.000 (active ingredient)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Hazardous decomposition

Thermal decomposition: No data.
Hazardous products of combustion: see section 5

Materials to avoid/Reactivity

Reacts with bases to liberate heat.
Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous polymerization

Does not occur.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product or on similar products are summarized below. Data obtained on active ingredient are summarized below.

Acute oral toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight
Other effects: breathing difficulty, decreased activity, soft stools
Practically non-toxic.
FIFRA category IV.
No mortality.

Acute dermal toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight
Target organs/systems: None.
Other effects: None.
Practically non-toxic.
FIFRA category IV.
No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 2.6 mg/L
Target organs/systems: None.
Other effects: breathing difficulty, decreased activity, local effects
Practically non-toxic
FIFRA category IV.

Skin irritation

Rabbit, 6 animals, OECD 404 test:
Days to heal: 1
Primary Irritation Index (PII): 0.4/8.0
Other effects: None.
Essentially non irritating.
FIFRA category IV.

Eye irritation

Rabbit, 6 animals, OECD 405 test:
Days to heal: 10
Moderate irritation.
FIFRA category II.

Skin sensitization

Guinea pig, Buehler test:
Positive incidence: 0 %

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, short term, case report(s):

Gastro-intestinal effects: irritation, nausea/vomiting, diarrhea

Ingestion, short term, :

Respiratory effects: increased fluid in lungs (lung/pulmonary oedema)
Cardiovascular effects: decreased blood pressure (hypotension)

Similar formulation

Acute oral toxicity

Rat, LD50: 5,000 mg/kg body weight
Slightly toxic.
FIFRA category III.

Acute dermal toxicity

Rabbit, LD50 (limit test): > 5,000 mg/kg body weight
Practically non-toxic.
FIFRA category IV.
No mortality.

Skin irritation

Rabbit, 6 animals, OECD 404 test:
Days to heal: 3
Primary Irritation Index (PII): 1.0/8.0

Slight irritation.
FIFRA category IV.

Eye irritation

Rabbit, 6 animals , OECD 405 test:

Days to heal: > 21
Other effects: pannus, tissue destruction in eye (necrosis of conjunctivae)
Severe irritation.
FIFRA category I.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 3 28 mg/L

Practically non-toxic.
FIFRA category IV.

Skin sensitization

Guinea pig, 9-induction Buehler test:

Positive incidence: 0 %

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, excessive, intentional misuse:

Respiratory effects: pneumonitis (aspiration)
Gastro-intestinal effects: nausea/vomiting, diarrhea, abdominal pain, bloody vomiting (haematemesis)
Cardiovascular effects: abnormal heart rhythm (cardiac dysrhythmia), decreased heart output (myocardial depression)
General/systemic effects: disturbances of fluid and electrolyte regulation, abnormally decreased blood volume (hypovolaemia), elevated serum amylase, fluid loss (haemoconcentration), no cholinesterase inhibition
Laboratory effects - blood chemistry: elevated serum transaminases, mild acidosis

Eye contact, short term, epidemiological:

Note: No cases of irreversible eye effects could be attributed to glyphosate formulations in an extensive epidemiological survey of reported accidental eye contact with these formulations.

N-(phosphonomethyl)glycine; {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day
Target organs/systems: None.
Other effects: None.

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet
Target organs/systems: None.
Other effects: None.

Carcinogenicity

Mouse, oral, 24 months:

NOEL tumour: > 30,000 mg/kg diet
NOAEL toxicity: ~ 5,000 mg/kg diet
Tumours: None.
Target organs/systems: liver
Other effects: decrease of body weight gain, histopathologic effects

Rat, oral, 24 months:

NOEL tumour: > 20,000 mg/kg diet
NOAEL toxicity: ~ 8,000 mg/kg diet
Tumours: None.
Target organs/systems: eyes
Other effects: decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

Rat, oral, 3 generations:

NOAEL toxicity: > 30 mg/kg body weight
NOAEL reproduction: > 30 mg/kg body weight
Target organs/systems in parents: None.
Other effects in parents: None.
Target organs/systems in pups: None.
Other effects in pups: None.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight
NOAEL development: 1,000 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss, delayed ossification
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight
NOAEL development: 175 mg/kg body weight
Target organs/systems in mother animal: None.
Other effects in mother animal: decrease of survival
Developmental effects: None

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Monsanto has not conducted environmental studies on this product. Data obtained on similar products are summarized below.

Similar formulation

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L
moderately toxic

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L
moderately toxic

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 12.9 mg/L
slightly toxic

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.6 mg/L
moderately toxic

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
practically non-toxic

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
practically non-toxic

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 48 hours, LD50: > 100 µg/bee
practically non-toxic

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
practically non-toxic

N-(phosphonomethyl)glycine; {glyphosate}

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Binds strongly to soil.

Water, aerobic:

Half life: < 7 days

Identical product without green dye

Biodegradation

Zahn-Wellens test:

Degradation: 80 % within 28 days

Inherently biodegradable.

13. DISPOSAL CONSIDERATIONS

Product

Dispose of as hazardous industrial waste.

Recycle if appropriate facilities/equipment available.

Burn in special, controlled high temperature incinerator.

Keep out of drains, sewers, ditches and water ways.

Follow all local/regional/national regulations.

Container

Triple rinse empty containers

Pour rinse water into spray tank.

Store for collection by approved waste disposal service.

Dispose of as hazardous industrial waste.

Do NOT re-use containers.

Follow all local/regional/national regulations.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation

Not hazardous under the applicable DOT, ICAO/IATA, IMO, IDG and Mexican regulations.

15. REGULATORY INFORMATION

ISCA Inventory

All components are on the US EPA's ISCA Inventory

SARA Title III Rules

Section 311/312 Hazard Categories
Immediate
Section 302 Extremely Hazardous Substances
Not applicable.
Section 313 Toxic Chemical(s)
Not applicable.

CERCLA Reportable quantity
Not applicable.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data. For more information refer to product label. Please consult Monsanto if further information is needed. Follow all local/regional/national regulations. In this document the British spelling was applied. All trademarks herein are trademarks of Monsanto Company or its subsidiaries.

Full denomination of most frequently used acronyms BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M (intramuscular), I.P. (intraperitoneal), I.V (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

Vegetation Management LLC
2901-12 Rivendell
Knoxville, TN 37922
206-812-8647
800-979-8994

"For Chemical Emergency"
 Spill, Leak, Fire, Exposure or Accident, Call:
 Chemtrec (24 Hours): (800) 424-9300
 Outside U.S., call collect: (703) 527-3887

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME: Vegetation Manager Oryzalin 4 Pro	CHEMICAL FORMULA: Oryzalin: 3,5-DinitroN4, N4-dipropyl-sulfanilamide
---	--

SECTION 2 - HAZARDOUS INGREDIENT INFORMATION

Section 313 of SARA Title III: Ingredients subject to reporting are identified by asterisk (*)

CAS NO.	COMPONENT	%	ACGIH TLV	OSHA PEL	OTHER
019044-88-3	Oryzalin	41	N/A	N/A	N/A
	Inert Ingredients	59			

SECTION 3 - PHYSICAL PROPERTIES

BOILING POINT: 212 F	MELTING POINT: N/A	SPECIFIC GRAVITY (H ₂ O=1) 1.138 - 1.239 @ 25C (77F)	VAPOR PRESSURE (mmHg) 23 mmHg @ 25 C
VAPOR DENSITY (AIR=1): 1.178	% SOLUBILITY IN WATER: Miscible in water	% VOLATILE BY WEIGHT: NE	
APPEARANCE: Bright orange opaque liquid	ODOR: Slight aromatic odor	EVAPORATION RATE (Butyl Acetate=1) <1	

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT & METHOD: No Ignition up to 200F (93.3 C) SCC	FLAMMABLE LIMITS IN AIR - LEL: UEL: Water based product
---	---

EXTINGUISHING MEDIA:
Water based product, will not burn

SPECIAL FIRE FIGHTING PROCEDURES: If product is involved in a fire, wear positive-pressure, self-contained breathing apparatus and full protective clothing

UNUSUAL FIRE AND EXPLOSION HAZARDS: If the water in the product has evaporated, the explosion potential of oryzalin as airborne dust is rated as severe. The minimum ignition temperature for a dust cloud is 714 °F (379 °C).

SECTION 5 - REACTIVITY DATA

STABILITY: Stable under normal conditions. If water in the mixture evaporates, however, the resultant mixture should be handled with care.

HAZARDOUS POLYMERIZATION: **N/A**

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides and other toxic gases may be formed if product is involved in a fire.

CONDITIONS & MATERIALS TO AVOID:
NONE

SECTION 6 - PROTECTIVE EQUIPMENT & EXPOSURE CONTROL METHODS

RESPIRATORY PROTECTION:
Atmospheric levels should be maintained below the exposure guidelines. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use NIOSH approved air-purifying respirator.

VENTILATION	LOCAL EXHAUST: ADEQUATE	MECHANICAL: ACCEPTABLE	SPECIAL: NONE	OTHER: NONE
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PROTECTIVE GLOVES: Chemical resistant gloves	EYE PROTECTION: Use safety glasses
--	--

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Long sleeved shirt and long pants; shoes plus socks	WORK/HYGIENIC PRACTICES: AVOID SKIN AND EYE CONTACT
---	---

PRODUCT NAME: Vegetation Manager Oryzalin 4 Pro

SECTION 7 - HEALTH HAZARDS

PRIMARY ROUTES OF ENTRY:

SKIN AND EYES

CARCINOGEN:

NONE KNOWN

NTP:

N/A

IARC MONOGRAPHS:

N/A

OSHA:

N/A

INHALATION:

At room temperature, exposure to vapors are minimal due to physical properties.

EYE CONTACT:

May cause slight transient eye irritation. Corneal injury is unlikely.

SKIN CONTACT:

Prolonged exposure may cause some skin irritation.

INGESTION:

Single dose toxicity is low. The oral LD50 for rats is 5000 mg/kg

SECTION 8 - EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT:

IMMEDIATELY FLUSH EYES WITH WATER FOR AT LEAST 15 MINS.

SKIN CONTACT:

Wash off in flowing water or shower.

INHALATION:

Remove to fresh air if effects occur. Consult a physician.

INGESTION:

If swallowed seek medical attention. DO NOT induce vomiting unless directed to do so by medical personnel.

SECTION 9 - SPILL, LEAK & DISPOSAL INFORMATION

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Use absorbent material to contain and clean up small spills. Scoop up and dispose as waste in approved disposal facility. Prevent runoff. DISPOSE OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN APPROVED WASTE DISPOSAL FACILITY IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 10 - SHIPPING DATA

DOT SHIPPING NAME:

NONE

SECTION 11 - SPECIAL PRECAUTIONS & OTHER INFORMATION

SPECIAL INSTRUCTIONS:

OTHER INFORMATION/PRECAUTIONS:

Read and follow all label instructions before use. Avoid contaminating water. Do not reuse containers. Open dumping is prohibited.

COMMON ABBREVIATIONS THAT MAY HAVE BEEN USED: N/A = NOT APPLICABLE N/E = NOT ESTABLISHED

The information provided on this Material Safety Data Sheet is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Vegetation Management, LLC. The data on this sheet relates only to the specific material designated herein. Vegetation Management, LLC assumes no legal responsibility for the accuracy or completeness of this data, nor for use or reliance upon this data.

DATE: 03/14/02

Appendix 3

Herbicide Container Disposal

Georgia Department of Natural Resources

Environmental Protection Division
Land Protection Branch
4244 International Parkway, Suite 104, Atlanta, Georgia 30354
Lonice C. Barrett, Commissioner
Harold F. Reheis, Director
(404)362-2537

June 5, 1995

To: Municipal Solid Waste Landfill Owners and Operators

SUBJECT: Handling of Empty Pesticide Containers

The Environmental Protection Division is currently working with the Georgia Department of Agriculture, the Georgia Agribusiness Council, pesticide manufacturers, and Georgia's farmers to promote the safe recycling and disposal of empty pesticide containers. One concern expressed is the lack of disposal capacity for empty pesticide containers because many landfill owners and operators are reluctant to accept pesticide containers at their landfills.

The purpose of this letter to clarify the regulatory status of empty pesticide containers and to encourage you to accept them for proper recycling or disposal. The Georgia Department of Agriculture, working together with the United Agriproducts, has been promoting and successfully recycling empty plastic pesticide containers. This project has been extremely successful and recycled over 110,000 pesticide containers last year. We encourage every community to continue their work with the Department of Agriculture in expanding this successful program. However, there are still a large number of pesticide containers which cannot be successfully recycled at this time and, therefore, must be properly disposed of in a permitted landfill or other approved disposal facility. Attached is a list of the more common pesticide containers that are likely to be brought to municipal solid waste landfills in Georgia. If properly emptied, any of these pesticide containers may be legally disposed of in a permitted municipal solid waste landfill. Pesticide containers should be triple rinsed or, in the case of containers with dust or solids, shaken to ensure that all loose contents have been removed. If emptied in the above manner, the container is considered non-hazardous and would present little, if any, hazard when disposed in the landfill.

If you have concerns with disposal of empty pesticide containers, particularly if they are brought to your facility in large quantities, or if you feel the containers have not been properly emptied, please feel free to contact your EPD compliance officer. Obviously, if these containers are not recycled or accepted at properly permitted disposal facilities, it is likely that they will be improperly dumped or disposed of in a manner that could create a threat to human health or the environment. We appreciate your cooperation in working with Georgia's Agribusiness to properly manage such containers.

Sincerely,

John D. Taylor, Jr., Chief
Land Protection Branch

JDT, Jr.:bc_{pesticid.ttr}

cc: Ron Conley
Harold Reheis
Gary Black
Don Register
Mel Kyle
bcc: Regional Managers
Lewis Tinley
Jim Dunbar

COMMON AG PESTICIDES USED IN GEORGIA

Ambush
Asana XL
Atrazine 4L
Balan EC
Bladex 4L
Basagran
Baythroid 2
Canopy
Classic
Cotoran 4L
Di-syston
Duel 8E
Fusilade DX
Gramuxone Extra
Karate
Karmex
LASSO
Lexone
Lorsban 15G
Microspense Wettable Sulfur
MSMA 6 Plus
Poast
Pounce
Princep 4L
Prowl
Roundup
Scepter
Sencor DF
Sinbar
Sonalan
Starfire
Temik
Treflan (R)
Zorial Rapid 80

Appendix 4

List of County Employees who hold
State Pesticide Licenses

Pesticide Applicator Licensing and Certification Gwinnett County Employees

Last Updated 06/13/07

Applicator ID	Applicator Type	Name	Expiration Date	City	Zip	County	Gwinnett County Department
45479	Private	Bagwell, Alec B.	3/22/2011	Gainesville	30507	Hall	DoSS
34751	Private	Bagwell, James R.	6/7/2010	Alpharetta	30004	Forsyth	DWR
05756	Commercial	Bearrow, Jon D.	3/1/2011	Monroe	30655	Walton	DWR
04363	Commercial	Beck, Scott A.	10/21/2009	Grayson	30017	Gwinnett	DWR
00320	Commercial	Brooks, Wayne H.	7/8/2010	Monroe	30656	Walton	Parks
02788	Commercial	Clark, Robert G.	8/20/2010	Flowery Branch	30452	Barrow	DWR
09927	Commercial	Daly, Timothy G.	4/20/2010	Snellville	30039	Gwinnett	Parks
01245	Commercial	Duncan, Jason H.	1/22/2011	Loganville	30052	Walton	DWR
08704	Commercial	Gillman, Marlene A.	6/20/2009	Auburn	30011	Barrow	DWR
36426	Private	Hall, Janice M.	12/17/2006	Winder	30680	Barrow	DWR
00572	Commercial	Hamachek, John A.	6/20/2004	Lawrenceville	30043	Gwinnett	DWR
04358	Commercial	Harris, Joshua T.	10/20/2009	Lawrenceville	30043	Gwinnett	DWR
83142	Private	Hearn, Tommy M.	8/29/2008	Hartwell	30643	Barrow	Parks
05758	Commercial	Means, Jeremy M.	3/1/2011	Loganville	30052	Walton	DWR
10034	Commercial	Morris, James A.	6/20/2005	Bethlehem	30620	Barrow	DWR
05759	Commercial	Moss, Margaret	3/1/2011	Lawrenceville	30045	Gwinnett	DWR
05762	Commercial	Moulder, Jeffrey T.	3/1/2011	Lilburn	30047	Gwinnett	DWR
76617	Private	Page, Philip A.	10/20/2008	Winder	30680	Barrow	DWR
01397	Commercial	Parent, Kathleen J.	12/20/2008	Cumming	30041	Forsyth	DWR
05292	Commercial	Pruitt, Andrew J.	9/13/2010	Dacula	30019	Gwinnett	DoSS
05519	Commercial	Slate, Donald J.	6/20/2007	Loganville	30249	Walton	DOT
14720	Commercial	Smith, Mark A.	10/23/2006	Snellville	30039	Gwinnett	DWR
07341	Commercial	Smith, Mark L.	8/4/2009	Dacula	30019	Gwinnett	DWR
02458	Commercial	Veronee, Laura M.	10/20/2010	Lawrenceville	30043	Gwinnett	DWR
05757	Commercial	Wallace, Darrell	3/1/2011	Lawrenceville	30045	Gwinnett	DoSS
05755	Commercial	Wangerin, Dennis L.	3/1/2011	Gainesville	30507	Hall	DOT
02785	Commercial	Williams, Robert G.	3/21/2008	Lawrenceville	30046	Gwinnett	DWR
07916	Commercial	Zeigler, Mark A.	2/20/2009	Lawrenceville	30045	Gwinnett	DWR

Appendix 5

Employee Herbicide Training Record

HAZARD COMMUNICATION CLASS LOG
Gwinnett County Risk Management Division

Last Updated 06/06/07

Class	Date	Dept	Employee	Hours	Inst.
HAZARD COMM	960830	COMM	ABERNATHY, WES	3	RB
HAZARD COMM	960830	COMM	HENZLER, MICHAEL	3	RB
HAZARD COMM	960830	PU	IVEY, MIKE	3	RB
HAZARD COMM	960830	COMM	MADDOX, LARRY	3	RB
HAZARD COMM	960830	COMM	MORRIS, RICK	3	RB
HAZARD COMM	960830	COMM	WALLACE, DARRELL	3	RB
HAZARD COMM	960906	COMM	JAMES, LUKE	3	RB
HAZARD COMM	960906	COMM	MEADORS, SR. C.B.	3	RB
HAZARD COMM	960906	COMM	PUCKETT, GENE	3	RB
HAZARD COMM	960906	COMM	ROBERTS, DANNY	3	RB
HAZARD COMM	961015	PU	ALEXANDER, HOYT L.	3	RB
HAZARD COMM	961015	COMM	COOK, BRIAN	3	RB
HAZARD COMM	961015	PU	DOBBS, JAMES E.	3	RB
HAZARD COMM	961015	PU	DOBBS, LARRY	3	RB
HAZARD COMM	961015	PU	HARRIS, ANTONIO L.	3	RB
HAZARD COMM	961015	COMM	MELTON, VIC	3	RB
HAZARD COMM	961015	COMM	PRUETT, JEFF	3	RB
HAZARD COMM	961015	COMM	ROOKS, MIKE	3	RB
HAZARD COMM	961015	PU	SHEALEY, TONY	3	RB
HAZARD COMM	961015	COMM	TRUVILLION, JAMES	3	RB
HAZARD COMM	961210	POLICE	COOPER, MELISSA	4	RB
HAZARD COMM	961210	PU	MORGAN, JESSE R.	4	RB
HAZARD COMM	961210	POLICE	MORRIS, JACKIE	4	RB
HAZARD COMM	961210	PU	PORTER, MICHAEL	4	RB
HAZARD COMM	961210	POLICE	WOMACK, JOANNA	4	RB
HAZARD COMM	961210	FIRE	WOOD, CHARLIE	4	RB
HAZARD COMM	970128	PU	BAGLEY, SCOTT	5	RB
HAZARD COMM	970128	PU	BRANNEN, ROBBIE A.	5	RB
HAZARD COMM	970128	PU	DOBBS, JAMES	5	RB
HAZARD COMM	970128	PU	FISHER, RAY	5	RB
HAZARD COMM	970128	PU	JOHNSON, THOMAS	5	RB
HAZARD COMM	970128	PU	LEWIS-LENO II, BILLY G.	5	RB
HAZARD COMM	970128	PU	LYONS, LEE	5	RB
HAZARD COMM	970128	SS	MADDOX, BARBARA D.	5	RB
HAZARD COMM	970128	PU	MULL, TINA	5	RB
HAZARD COMM	970128	PU	SHEALEY, TONY	5	RB

HAZARD COMM	970228	FIN	BLACK, MELISSA	5	RB
HAZARD COMM	970228	TRANS	BRASELTON, STACEY	5	RB
HAZARD COMM	970228	TRANS	CRUSE, TONY	5	RB
HAZARD COMM	970228	TRANS	DANIELS, GEORGE S.	5	RB
HAZARD COMM	970228	TRANS	DAVIS, JOHN T.	5	RB
HAZARD COMM	970228	SS	GREESON, GENE	5	RB
HAZARD COMM	970228	TRANS	HAAG, TIMOTHY	5	RB
HAZARD COMM	970228	TRANS	HENRY, DON	5	RB
HAZARD COMM	970228	TRANS	HERRINGTON, TROY	5	RB
HAZARD COMM	970228	PU	McDANIEL, JOEY	5	RB
HAZARD COMM	970228	PU	OSBORNE, DAVID	5	RB
HAZARD COMM	970228	TRANS	SIMMONS, DONNIE	5	RB
HAZARD COMM	970228	TRANS	WOOD, JAMES	5	RB
HAZARD COMM	970506	P&D	FRANKLIN, JACK N.	5	RB
HAZARD COMM	970506	PU	HAYES, KENNETH	5	RB
HAZARD COMM	970506	PU	MAXWELL, GEORGE	5	RB
HAZARD COMM	970506	PU	McCLELLAN, TOMMY	5	RB
HAZARD COMM	991007	PU	FLOWERS, JEFFREY A.	6	RB
HAZARD COMM	991007	PO	MARENO, EDWARD E.	6	RB
HAZARD COMM	991007	PO	TOWLER, SANDRA L.	6	RB
HAZARD COMM	991007	SS	WHITE, DEBRA	6	RB
HAZARD COMM	000907	PU	CASPER, ELLIS RUDY	6	RB
HAZARD COMM	000907	PU	CRAIG, JOEL	6	RB
HAZARD COMM	000907	PU	EDWARDS, DAVID	6	RB
HAZARD COMM	000907	PU	GAMBLE, LARRY	6	RB
HAZARD COMM	000907	PU	LU, JOHN	6	RB
HAZARD COMM	000907	PU	MAHAFFEY, DAVID H.	6	RB
HAZARD COMM	000907	PU	SWANSON, ARLISS	6	RB
HAZARD COMM	001213	PU	ATKINSON, JEFFREY	5	RB
HAZARD COMM	001213	PU	BAGWELL, BEN	5	RB
HAZARD COMM	001213	PU	HOWDER, JEFF	5	RB
HAZARD COMM	001213	PU	WARNER, GERALD	5	RB
HAZARD COMM	001213	PU	ZAYZAY, ABRAHAM	5	RB
HAZARD COMM	010313	P&D	DAVIS, JIM	6	RB
HAZARD COMM	010313	PU	DUKE, KYLE	6	RB
HAZARD COMM	010313	PU	LEWIS II, BILLY G.	6	RB
HAZARD COMM	010313	PU	LU, JOHN	6	RB
HAZARD COMM	010313	PU	LUTHER, MIKE	6	RB
HAZARD COMM	010313	PU	MORGAN, JESSE	6	RB
HAZARD COMM	010313	PU	ROACH, PATRICK	6	RB
HAZARD COMM	010313	P&D	RYLEE, DAVID	6	RB

HAZARD COMM	010313	PU	SHENLEY, TONY	6	RB
HAZARD COMM	010313	PU	TORREY, JASON	6	RB
HAZARD COMM	010313	PU	WARREN, TODD	6	RB
HAZARD COMM	010613	PU	CASPER, ELLIS	5	RB
HAZARD COMM	010613	PU	FERGUSON, CARROLL	5	RB
HAZARD COMM	010613	PU	GAMBLE, LARRY	5	RB
HAZARD COMM	010613	PU	GREER, BARRY	5	RB
HAZARD COMM	010613	P&D	MADDOX, RUSTY	5	RB
HAZARD COMM	010613	PU	MAHAFFEY, SR., DAVID	5	RB
HAZARD COMM	011210	PU	DANG, HO	6	RB
HAZARD COMM	011210	PU	LAMBERT, BILL	6	RB
HAZARD COMM	011210	PU	McCREARY, STEVEN H.	6	RB
HAZARD COMM	011217	PU	DEAL, TYRUS	6	RB
HAZARD COMM	011217	PU	HARGROVE, JAMES	6	RB
HAZARD COMM	011217	PU	HUTTOE, WAYNE	6	RB
HAZARD COMM	011217	COMM	LEVY, VINSON	6	RB
HAZARD COMM	011217	COMM	MOSSMAN, NANCY	6	RB
HAZARD COMM	020326	PU	CASPER, RUDY	5	RB
HAZARD COMM	020326	PU	GAMBLE, LARRY	5	RB
HAZARD COMM	020326	PU	GAUTHIER, GREG	5	RB
HAZARD COMM	020326	PU	LU, JOHN	5	RB
HAZARD COMM	020326	PU	MCCANTS, JASON	5	RB
HAZARD COMM	020326	P&D	WANGERIN, DENNIS	5	RB
HAZARD COMM	020326	PU	ZAYZAY, ABRAHAM	5	RB
HAZARD COMM	020612	PU	HO, DANG	5	RB
HAZARD COMM	020612	PU	LAMBERT, BILL	5	RB
HAZARD COMM	020925	PU	McCREARY, STEVEN H.	5	RB
HAZARD COMM	020925	PU	RODRIQUE, JOHNNY	5	RB
HAZARD COMM	030611	PU	BOWERS, KERRY	5	RB
HAZARD COMM	030611	PU	CLARK, JESSE	5	RB
HAZARD COMM	030611	PU	KIGHT, JOHN	5	RB
HAZARD COMM	030611	COMM	LINDSTROM, PETER	5	RB
HAZARD COMM	030916	PU	ANDERSON, HERSHEL	5	RB
HAZARD COMM	030916	PU	HOLBROOKS, JACK	5	RB
HAZARD COMM	030916	PU	PHILLIPS, WADE	5	RB
HAZARD COMM	030916	COMM	PUGH, STANLEY	5	RB
HAZARD COMM	030916	PU	TEDESCO, DOUGLAS E.	5	RB
HAZARD COMM	031125	PU	LOGGINS, DONALD	5	RB
HAZARD COMM	031125	PU	McCOOL, SHAWN	5	RB
HAZARD COMM	031125	PU	MILLER, JEFF	5	RB
HAZARD COMM	031125	PU	WARREN, ROBERT	5	RB

HAZARD COMM	032503	COMM	GUERRA, RUDY	5	RB
HAZARD COMM	040309	PU	DIXON, TERRI	5	RB
HAZARD COMM	040309	PU	GAUTHIER, GREG	5	RB
HAZARD COMM	040309	PU	LUTHER, MIKE	5	RB
HAZARD COMM	040309	PU	McCANTS, JASON	5	RB
HAZARD COMM	040309	PU	TEDESCO, DOUG	5	RB
HAZARD COMM	040908	COMM	KIDD, AMBER	5	RB
HAZARD COMM	040908	COMM	McCOOK, KRISTI	5	RB
HAZARD COMM	040908	COMM	WILKERSON, RAMOHNE	5	RB
HAZARD COMM	040908	PU	WILSON, BILL	5	RB
HAZARD COMM	041103	PU	MCELHANON, RALPH	5	RB
HAZARD COMM	041103	PU	O'CONOR, BRUCE	5	RB
HAZARD COMM	041103	PU	PAPPAS, MIKE	5	RB
HAZARD COMM	041103	PU	REED, TIM	5	RB
HAZARD COMM	041103	PU	ROBERTS, WALTER	5	RB
HAZARD COMM	041103	PU	ROSBURY, RICK	5	RB
HAZARD COMM	041103	PU	WEESE, DENNIS	5	RB
HAZARD COMM	060303	DWR	BAGLEY, SCOTT	3	KM
HAZARD COMM	060303	DWR	BARNES, JEROME	3	KM
HAZARD COMM	060303	DWR	BUTLER, CHAD	3	KM
HAZARD COMM	060303	DWR	CAGLE, JEREMY	3	KM
HAZARD COMM	060303	DWR	CARRAHER, KEVIN	3	KM
HAZARD COMM	060303	DWR	COOPER, FLOYD	3	KM
HAZARD COMM	060303	DWR	CROWE, RICHARD	3	KM
HAZARD COMM	060303	DWR	EKHAESAMLI, SALVATION	3	KM
HAZARD COMM	060303	DWR	EVANS, GREG	3	KM
HAZARD COMM	060303	DWR	HELTON, JIMMY	3	KM
HAZARD COMM	060303	DWR	HOPKINS, JOSH	3	KM
HAZARD COMM	060303	DWR	JOHNSON, JERRY	3	KM
HAZARD COMM	060303	DWR	MOSLEY, DONALD	3	KM
HAZARD COMM	060303	DWR	SULLIVAN, JIM	3	KM
HAZARD COMM	060303	DWR	WILSON, KENT	3	KM
HAZARD COMM	060926	DWR	BUTLER, JOHN	2.5	KM
HAZARD COMM	060926	DWR	LEO, STEVE	2.5	KM
HAZARD COMM	060926	DWR	MCDANIEL, TRAVIS	2.5	KM
HAZARD COMM	070302	DWR	BRUCE, ERIC	3	MB
HAZARD COMM	070302	DWR	CASPER, DAVID	3	MB
HAZARD COMM	070302	DWR	FAULKNER, DARRIE	3	MB
HAZARD COMM	070302	DWR	GARLAND, DANA	3	MB
HAZARD COMM	070302	DWR	GARLAND, MICHAEL	3	MB
HAZARD COMM	070302	DWR	PFEIFER, PHILLIP	3	MB

HAZARD COMM	070302	DWR	PYLE, TONY	3	MB
HAZARD COMM	070302	DWR	RAPP, ROBERT	3	MB
HAZARD COMM	070302	DWR	SMITH, MORRIS	3	MB
HAZARD COMM	070302	DWR	SUMER, LEWIS	3	MB
HAZARD COMM	070302	DWR	WARREN, TODD	3	MB

**Category 24 Turf and Ornamental Pesticide Applicator's Licensing Training
Gwinnett County Cooperative Extension Service**

Class	Employee	Date	Department	Instructor
Pesticide Applicator's Training	Todd Moulder	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	David Rice	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	Butch Wallace	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	Rand Chichester	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	Enos Slaughter	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	Peggy Moss	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	John Bearrow	2/23/2006	Parks and Rec	RB
Pesticide Applicator's Training	Dennis Wangerin	2/23/2006	DPU	RB
Pesticide Applicator's Training	Gene McDaniel	2/23/2006	DPU	RB
Pesticide Applicator's Training	Terry Mandeville	2/23/2006	DOT	RB
Pesticide Applicator's Training	David Norton	2/23/2006	DOT	RB
Pesticide Applicator's Training	Jeremy Means	2/23/2006	NRCS	RB
Pesticide Applicator's Training	Swilvio Gavrilive	2/23/2006	Comm. Services	RB
Pesticide Applicator's Training	Gabriel Nicoara	2/23/2006	Sherriffs Dept.	RB
Pesticide Applicator's Training	Timothy Kellogg	2/23/2006	Sherriffs Dept.	RB
Pesticide Applicator's Training	Christopher Dyals	2/23/2006	Sherriffs Dept.	RB
Pesticide Applicator's Training	James Davis	2/23/2006	Police Dept.	RB
Pesticide Applicator's Training	Timothy Copes	2/23/2006	Police Dept.	RB
Pesticide Applicator's Training	Robert St. Germaine	2/23/2006	Police Dept.	RB
Pesticide Applicator's Training	Kel Britt	2/23/2006	Facilities	RB

Appendix 6

Procedures

Triple Rinsing Procedure

1. Empty contents of container into spray tank, turning the container so that any product trapped in the handle is allowed to flow out. Once flow is down to a drip, allow the container to drain for an additional 30 seconds.
2. Immediately begin rinsing procedures or the product may become difficult to remove.
3. Fill the empty container 1/4 full of clean water.
4. Replace the cap on the container. With the container opening facing left, shake the container left to right over a distance of four to six inches. Shake the container about twice per second for 30 seconds.
5. Drain rinse water into spray tank as previously described.
6. Fill the empty container 1/4 full of clean water a second time.
7. Recap the container. With the opening of the container pointed towards the ground, shake the container as described before. Then drain the rinse water into the spray tank.
8. Finally, fill the empty container 1/4 full once more with clean water.
9. Recap the container. With the container in the normal, upright position, shake the container as described before.
10. Pour the rinse water into the spray tank. Carefully rinse and spray residue from the outside of the container.



Source: <http://www.usagrecycling.com/rinse.html>

Acceptable vs. Unacceptable Containers!

Compare your containers with the ones shown below

ACCEPTABLE



Thread and lip are clean.

NOT ACCEPTABLE



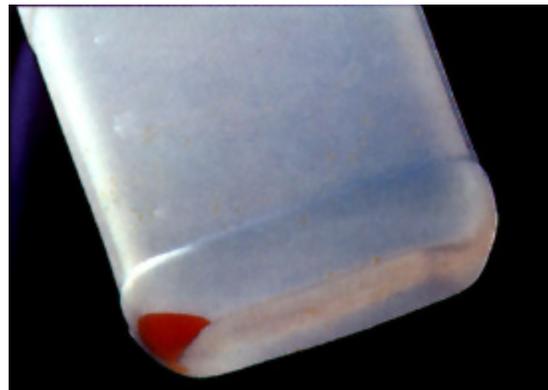
Dried formulation on thread and lip.



Stained but acceptable.



Stained and unacceptable.



Inside of container is dry.



Inside of bottom is rinsed clean.

Liquid is present inside container.



Bottom is caked with formulation.

To be acceptable for recycling, plastic crop protection products containers must be empty, clean, uncapped, and dry. Follow this checklist to make sure your containers are acceptable, then compare them with the above pictures.

- **EMPTY:** Plastic containers must be empty to be recycled.
- **CLEAN:** Pressure of triple-rinse the container as soon as it is emptied. Container must be cleaned or they will not be accepted into the recycling program.
- **INSPECT:** Immediately after rinsing the container, look inside and make sure that all the formulation has been rinsed out. Also inspect the outside of the container; particularly check that the pour spout, the spout threads, and the container wall surrounding the spout are free of formulation residues that flake, smear, or come off on a glove when touched. We cannot process containers that have dried formulation in or on them.
- **DISCARD CAP:** Caps are usually made of a different kind of plastic and cannot be recycled. Be sure to clean the cap at the time the container is rinsed. Never put a cap back on a cleaned container. Dispose of the cleaned caps as normal solid waste.
- **KEEP CONTAINERS DRY:** Cleaned containers must be kept out of the rain and away from the rain water. Store cleaned containers in a roofed building, an enclosed trailer, or in plastic bags.
- **LABELS:** Please Remove the instruction booklets.
- **STAINS:** Containers that originally held products known to stain plastic are acceptable for recycling if the plastic is stained but otherwise clean.

Source: <http://www.usagrecycling.com/containers.asp>

Appendix 7

Other Guidelines

**Best Management Practice (BMP)
Water Quality Protection Guideline
Secondary Containment Design and Operation Standards**

Section 1. Introduction

According to the EPA, the majority of water pollution in our streams today is directly caused by pollutants that have been dumped or spilled onto the ground and that are then washed from these surfaces into our creeks and streams by rainwater. This pollution is caused by many different sources and activities, each of which may seem insignificant when considered in isolation. However, stormwater runoff, acting as nature's bath, collects and combines each of these small pollutant sources, which drain into a local stream and causes significant levels of water pollution.



Improper storage of potential pollutants will increase the risk of water pollution that may occur because of spills.

The risk of water pollution associated with the storage of potential pollutants can be minimized through the implementation of the simple water quality best management practices (BMPs) contained within this guideline.

With respect to secondary containment this guideline is intended to provide minimum requirements for compliance with Gwinnett County's Illicit Discharge and Illegal Connection (IDIC) Ordinance (Chapter 100, Gwinnett County Code of Ordinances). It is expected that individuals and companies involved in storing potential pollutants will fully implement these guidelines and take any additional necessary and reasonable actions, as needed on a case-by-case basis, to prevent stormwater pollution.

1.1 Definitions

For the purposes of this Water Quality Protection Guideline the following terms will be defined as follows:

"Potential pollutants" as used in this guideline refers to any liquid that could reasonably be expected to cause water pollution if it were to enter into a stream or drainage system and would include, but not be limited to; oils, fuels, detergents, pesticides and other chemicals.

"Rainwater waste" in this guideline refers to rainwater that has accumulated within a secondary containment area.

"Polluted rainwater waste" as used in this guideline will refer to rainwater waste that contains a pollutant or pollutants.

“Unpolluted rainwater waste” in this guideline will refer to rainwater waste that does not contain any pollutant or pollutants.

Section 2. Purpose

The purpose of this Water Quality Protection Guideline is to:

- (1) provide details of water quality BMPs that may be implemented to assist in controlling pollutants associated with the storage of potential pollutants;
- (2) serve as a reference for regulators, inspectors and others who assess the water quality impacts of operations that store these types of materials; and
- (3) provide guidance that, if implemented, will assist in securing compliance with Gwinnett County's Illicit Discharge and Illegal Connection (IDIC) Ordinance.

Section 3. Best Management Practices

3.1 Design Requirements

- (1) Secondary Containment shall be designed and constructed to meet the following criteria:
 - (a) provide adequate backup storage capacity for stored potential pollutants; and
 - (b) provide a barrier between the primary storage container and the environment, thereby reducing the potential for soil, surface water and ground water contamination; and
 - (c) provide additional storage capacity for any potential pollutants which may leak or spill due to the failure, overfilling or improper draining of the primary storage container.
- (2) These criteria may be achieved through implementation of the following design considerations:
 - (a) Structurally, secondary containment may be constructed out of any material that will adequately contain the potential pollutants stored within the contained area. Commonly concrete, concrete block, plastic and steel are used; and
 - (b) The secondary container including walls, floors and joints should be constructed of materials that are capable of adequately containing those potential pollutants stored within; and
 - (c) Available capacity of the containment area shall be at least 110% of the total volume of the largest primary container. Such volume must take into consideration the volume reduction caused by the containers themselves. See Figure 1; and
 - (d) Any provided drainage valves must be liquid tight and able to be locked in the fully closed position.

3.2 Secondary Containment

Rainwater will collect in uncovered secondary containers. Rainwater waste that collects within secondary containment must be removed regularly so that it does not reduce the capacity of

the secondary container to contain potential pollutants that may subsequently be spilled within. However this rainwater waste must initially be treated as if it may be polluted. The best way to handle this rainwater waste stream is to prevent its generation in the first place. This can be accomplished by providing cover to the secondary containment area.

3.2.1 Secondary Containment with Cover

- (1) Effective cover should consist of a stable and permanent structure that extends beyond the outer wall of the secondary containment a distance greater than or equal to 30% of the height of the cover above the top of the secondary containment wall. For example, where the cover is situated 10 feet above the secondary containment wall it should also extend a minimum of 3 feet in all directions beyond the vertical plane of the secondary containment wall. See Figure 2 attached.
- (2) Even with cover provided, rainfall may occasionally still enter into a secondary container. Under these circumstances this rainwater waste must be handled in accordance with the guidelines contained within section 3.2.2 below.
- (2) Use of secondary containment without a cover is not recommended. Utilizing uncovered secondary containment will increase the risk of storm water pollution and increase the potential for violations of Gwinnett County's IDIC Ordinance.

3.2.2 Secondary Containment Without Cover

- (1) As stated with 3.2.1(3) above secondary containment without cover is not recommended.
- (2) In circumstances where rainwater has collected in secondary containment after a rain event, all such rainwater waste must be initially treated as if it were polluted and be properly tested to ascertain whether pollutants do actually exist in the collected rainwater waste.
 - a. The owner of the secondary containment is deemed the generator of the rainwater waste and is therefore responsible for its storage and disposal.
 - b. Appropriate testing will depend on the potential pollutant(s) that are stored within the secondary containment area. Examples of appropriate testing could include:
 - i. Oil/Petroleum: Visually checking for oil or petroleum sheen on the surface of the water; or
 - ii. Liquid chlorine: Use a field test kit to check for the presence of chlorine; or
 - iii. Acids/Alkalis: Use a pH test kit to ensure water has a pH of between 6.0 and 8.5; or
 - iv. Other: Tests should be quantitative and provide objective and reproducible results.
 - c. Results of testing should be recorded and kept on file.
 - d. Any rainwater waste that tests positive for any pollutants (polluted rainwater waste) must not be discharged onto the ground or into a storm drain.

- e. Collected rainwater waste that tests negative for relevant pollutants (unpolluted rainwater waste) may be discharged to the ground or to a storm drain.
 - f. Gwinnett County reserves the right to make a final determination on whether rainwater waste is polluted or not. The generator may be found in violation of the County's Illicit Discharge and Illegal Connection Ordinance where the county determines that polluted rainwater waste was discharged to a storm drain.
 - g. To be considered unpolluted rainwater waste, such rainwater waste must not contain any pollutants that may be observed through use of qualitative or quantitative laboratory or field analysis techniques
- (3) Once tested the generator must make a determination on how the rainwater waste should be disposed of. Disposal options consist of onsite or offsite disposal. See section 4.0 below.
- (4) Rainwater waste must not remain or be allowed to accumulate in a secondary containment structure for more time than is reasonably necessary after a rainfall event. Allowing rainfall waste to accumulate will reduce the capacity of the structure and therefore limit its effectiveness.
- (5) Drainage valves to secondary containment must remain closed and locked at all times when not in use and should only be opened to drain a spill or polluted rainwater waste to a collection tanker or other appropriate container or disposal location, or to allow unpolluted rainwater waste to escape. Only employees familiar with the contents of this guideline should be issued with a key to the lock on the drainage valve.

Section 4. Rainwater Waste Disposal Options

4.1 On-Site Disposal

4.1.1 Disposal to Sanitary Sewer

- (1) Disposal of polluted rainwater waste to the sanitary sewer must meet the sanitary sewer discharge standards which are administered by Gwinnett County Department of Public Utilities. Common discharge standards* are as follows:
- a. Temperature: Less than 150° F;
 - b. PH: Between 5.5 and 10.5;
 - c. Oils and Grease: Less than 200 mg/L;
 - d. Solids or viscous substances may only be discharged in amounts that will not obstruct sewer flow;
 - e. Toxic Pollutants identified in Section 307(a) of the Clean Water Act (See appendix A);
 - f. Lead: 116 ug/L;
 - g. Copper: 109 ug/L;
 - h. Total Petroleum Hydrocarbon (TPH): 20 ug/L;
 - i. Biological Oxygen Demand (BOD₅): 700 (350**) mg/L;
 - j. Total Suspended Solids (TSS): 700 (350**) mg/L;

*Please note: This is not a complete list. If you have questions about the discharge limits of a specific pollutant please contact the Department of Public Utilities at 678-376-6700.

**Requirement in "No Business Creek"

- k. All discharges to the sanitary sewer must be free of grease, oil, grit or any other material that could possibly clog the sewer. The Department of Public Utilities requires filtering the wash water through a 400 micron filter before discharging. The waste left in the filter may be bagged, dried and placed in a dumpster.
- l. Any waste water that may contain oil or grease must be discharged to the sanitary sewer through an oil/water separator.

- m. Discharges to the sanitary sewer must not contain pollutants that could create fire or explosion hazard.
- n. Waste water must only be discharged to parts of the sanitary sewer that are privately owned. Rainwater waste must **not** be discharged directly into the publicly owned sanitary sewer system.
- o. No more than 50 gallons of rainwater waste of acceptable quality may be discharged to the sanitary sewer within a 24 hour period without the prior approval of Gwinnett County Department of Public Utilities – Water Reclamation Division. Please contact this division at 678-376-7000 for additional information.

4.1.2 Disposal to Septic System

- (1) Most septic systems are only permitted by the Environmental Health section of the Gwinnett County Board of Health to receive bathroom and kitchen type wastewater (domestic wastewater). Additional permits through the Georgia Environmental Protection Division would be needed to discharge non-domestic wastewater to septic systems. Non-domestic wastewater would likely include polluted rainwater waste.
- (2) Prior to discharging polluted rainwater waste to a septic system, the waste generator must confirm that the discharge is covered by the appropriate EPD permit. Please contact EPD's Georgia Geologic Survey - Underground Injection Control Coordinator at (404) 656-3214 for more information.
- (3) Generators must not discharge waste water to septic systems in violation of the terms of the permit.
- (4) Volumes of rainwater waste otherwise eligible for discharge to a septic system, when combined with waste water from other sources, must not exceed the volume of waste water the system was designed to handle.

4.1.3 Disposal to Storm Drain

- (1) Only rainwater and unpolluted rainwater waste may be discharged to a storm drain.

- (2) Discharge to the storm drain of polluted rainwater waste will constitute a violation of the county's Illicit Discharge and Illegal Connection Ordinance and all appropriate penalties may be applied.
- (3) Gwinnett County reserves the right to make a final determination on whether rainwater waste is polluted or not. The generator or discharger may be found in violation of the County's Illicit Discharge and Illegal Connection Ordinance where the county determines that polluted rainwater waste was discharged to a storm drain.
- (4) If you have any doubt as to whether your rainwater waste water would meet all of the requirements for discharge to the storm drain it should be collected and disposed of via one of the other methods mentioned in this environmental guideline.

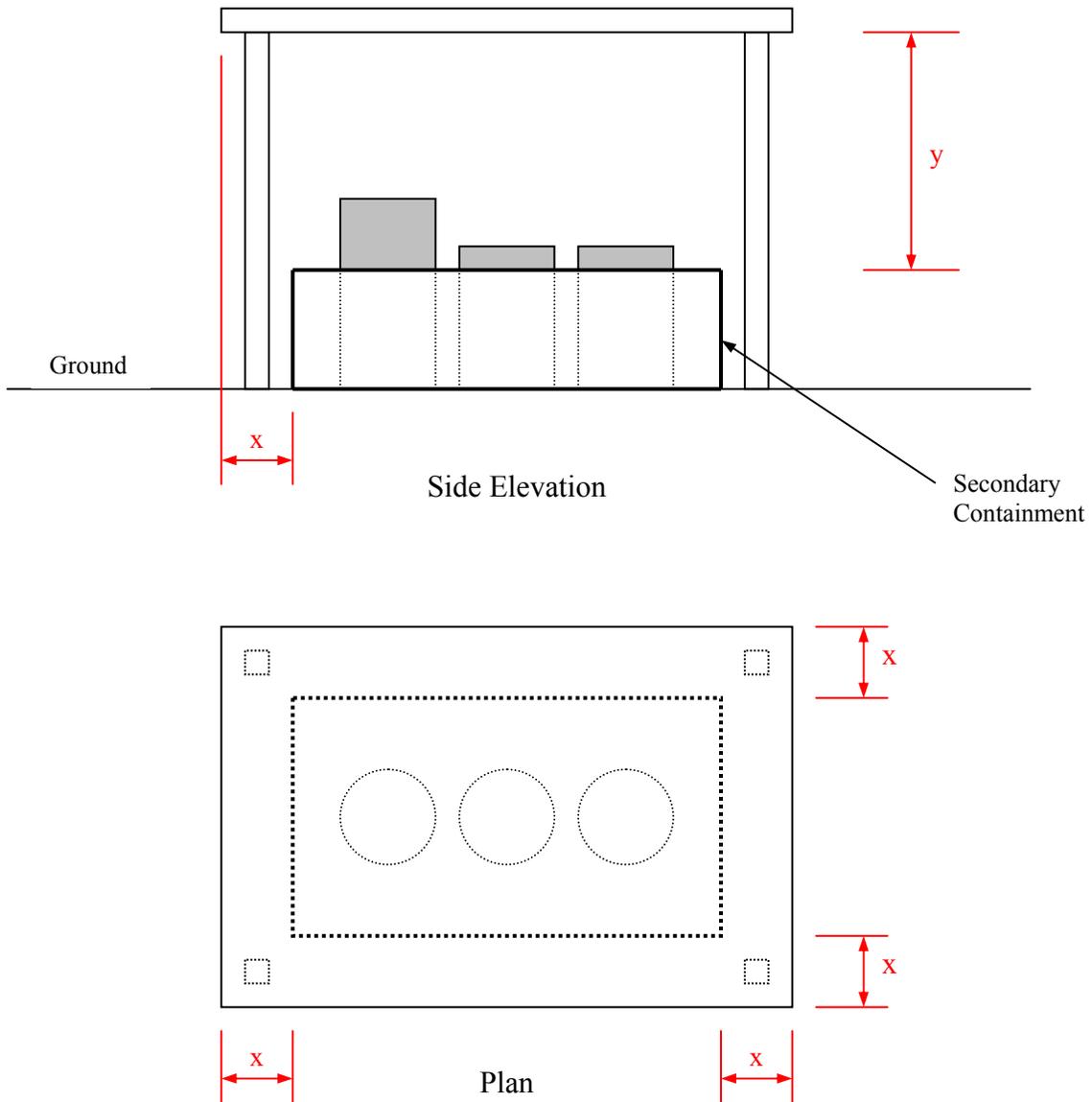
4.2 Off-Site Disposal

- (1) If on-site disposal methods cannot be utilized because of the restrictions contained within section 4.1 above, all polluted rainwater waste must be collected and disposed of off-site.
- (2) All generated polluted rainwater waste must be collected.
- (3) Off-site disposal locations must be permitted to accept and handle the collected polluted rainwater waste.
- (4) Polluted rainwater waste must be transported in a manner that ensures that no discharge occurs between the waste generation location and the permitted off-site disposal location.
- (5) Records of off-site disposal, including at a minimum the time, date, volume and name of the disposal company, should be kept by the generator.

Section 5. General

- (1) It is illegal to dispose of any waste or pollutants into the storm sewer system. Penalties for non-compliance include fines of up to \$1,000 and/or 60 days in county jail.
- (2) To report a spill or discharge into the storm sewer system contact Gwinnett County's Storm Water Management Division's 24-hour call center at 678-376-7000.
- (3) Additional information regarding water quality, storm water programs and storm water best management practice implementation can be obtained by contacting Gwinnett County's Storm Water Management Division at 678-376-6949 or visiting www.gwinnettstormwater.com.

Figure 1
Secondary Containment Cover Overhang Detail

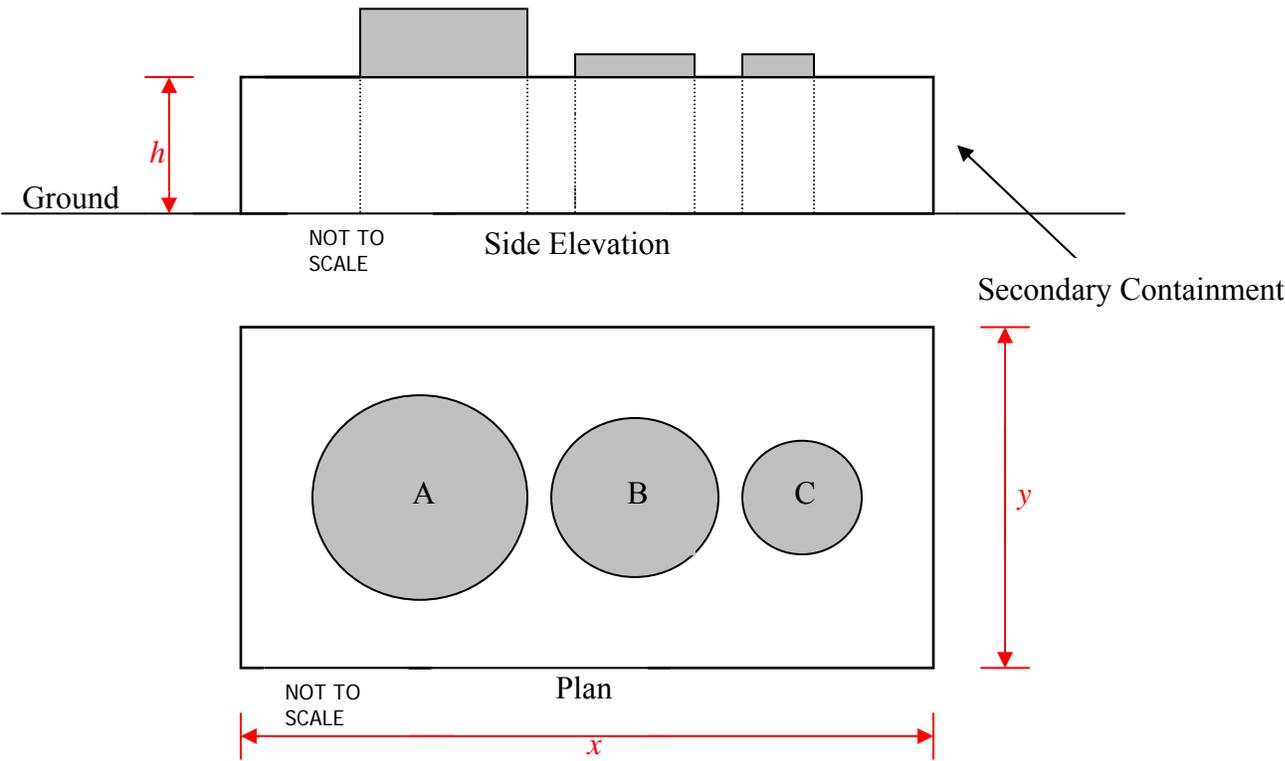


Minimum Roof Overhang: $x \geq 0.3y$

Where x = overhang; and
 Where y = distance between roof and top of secondary containment

Example: If $y=10\text{ft}$; then $0.3 \times 10 = 3\text{ft}$.
 So, the overhang needs to be at least 3 feet.

Figure 2
Example Calculations for Secondary Containment
Storage Capacity



Assumptions:		
$x = 25$ feet	Volume Tank A = 6,000 gal.	Radius Tank A = 3 ft.
$y = 15$ feet	Volume Tank B = 4,500 gal.	Radius Tank B = 2.5 ft.
$h = \text{to be calculated}$	Volume Tank C = 3,500 gal.	Radius Tank C = 2 ft.

Secondary Containment Storage Capacity Calculations

Step 1. Calculate *Required Containment Volume*
 = 110% of single largest tank
 = **6,000 x 1.1**
 = **6,600 gallons**

Step 2. Convert *Required Containment Volume* to cubic feet
 = *Required Containment Volume* x [0.1337 cu. ft./gal.] conversion factor
 = **6,600 gals. x [0.1337 cu. ft./gal.]**
 = **883 cu. ft.**

Step 3. Calculate *Total Contained Surface Area*

$$\begin{aligned} &= (xy) \\ &= \mathbf{25 \text{ ft.} \times 15 \text{ ft.}} \\ &= \mathbf{\underline{375 \text{ sq. ft.}}} \end{aligned}$$

Step 4. Calculate *Total Cross-Sectional Area of Tanks*

$$\begin{aligned} &= \Pi r^2 \\ &= 3.14 \times (\text{radius of tank})^2 \end{aligned}$$

Tank A

$$\begin{aligned} &= [3.14 \times (3)^2] \\ &= \mathbf{28.26 \text{ sq. ft.}} \end{aligned}$$

Tank B

$$\begin{aligned} &= [3.14 \times (2.5)^2] \\ &= \mathbf{19.63 \text{ sq. ft.}} \end{aligned}$$

Tank C

$$\begin{aligned} &= [3.14 \times (2)^2] \\ &= \mathbf{12.56 \text{ sq. ft.}} \end{aligned}$$

Total Cross-Sectional Area of Tanks

$$\begin{aligned} &= \mathbf{28.26 + 19.63 + 12.56} \\ &= \mathbf{\underline{61 \text{ sq. ft.}}} \end{aligned}$$

Step 5. Calculate *Available Contained Surface Area*

$$\begin{aligned} &= (\text{Total Contained Surface Area}) - (\text{Total Cross-Sectional Area of Tanks}) \\ &= \mathbf{(375 \text{ sq. ft.}) - (61 \text{ sq. ft.})} \\ &= \mathbf{\underline{314 \text{ sq. ft.}}} \end{aligned}$$

Therefore, to determine the required height for the containment wall (h):

$$\text{Volume}(V) = \text{Length}(x) \times \text{Width}(y) \times \text{Height}(h)$$

$$(h) = V/xy$$

So where:

$$V = \text{Required Containment Volume (Step 2)} = \mathbf{883 \text{ cu. ft.}}$$

$$xy = \text{Available Contained Surface Area (Step 5)} = \mathbf{314 \text{ sq. ft.}}$$

Height of Containment Wall (h)

$$\begin{aligned} &= \mathbf{(883 \text{ cu. ft.} / 314 \text{ sq. ft.})} \\ &= \mathbf{\underline{2.81 \text{ ft.} (33.75 \text{ inches})}} \end{aligned}$$

In this example, the containment wall must be at least 2.81 feet in height to provide the required containment capacity.

Best Management Practice (BMP) Water Quality Protection Guideline Commercial Landscaping and Lawn Care Services

For the purpose of this Water Quality Protection Guideline, Commercial Landscaping and Lawn Care Services are defined as those services offered for a fee and which include the installation, maintenance and/or care of lawns, trees, shrubs, gardens and ancillary hardscapes primarily for aesthetic purposes but which exclude commercial agricultural activities.



Section 1. Introduction

According to the EPA, the majority of water pollution in our streams today is caused by pollutants that have been dumped or spilled onto the ground, and which are then washed from these surfaces by rainwater into our creeks and streams. This pollution is caused by many different sources and activities, each of which may seem insignificant when considered in isolation. However, stormwater runoff, acting as nature's bath, collects and combines each of these small pollutant sources, which drain into a local stream and cause significant levels of water pollution.

Activities associated with Commercial Landscaping and Lawn Care Services have the potential to contribute pollutants such as sediments, pesticides, fertilizers, and yard waste into our waterways.

Pollution from these activities can be minimized or eliminated through the implementation of the simple water quality best management practices (BMPs) contained within this guideline.

With respect to Commercial Landscaping and Lawn Care Services this guideline is intended to provide minimum requirements for compliance with Gwinnett County's Illicit Discharge and Illegal Connection (IDIC) Ordinance (Chapter 100, Gwinnett County Code of Ordinances). It is expected that individuals and companies involved in Commercial Landscaping and Lawn Care Services will fully implement these guidelines and take any additional necessary and reasonable actions, as needed on a case-by-case basis, to prevent storm water pollution.

1.1 Definitions

"Pesticide" as used in this guideline refers to any chemical that is used to control pest species and that includes but is not limited to insecticides, herbicides, fungicides, algacides and other similar products.

"Fertilizer" as used in this guideline refers to any substance that contains as an active ingredient, in any form, phosphorus, nitrogen and/or potassium and which is used for the purpose of maintaining or enhancing the growth of vegetation.

"Fuel" as used in this guideline refers to any liquid that could reasonably be expected to cause water pollution if it were to enter into a stream or drainage system and would include but not be limited to both new and used hydraulic oils, motor oils, gasoline, diesel and other similar products.

"Secondary Containment" refers to a risk management measure that provides a secondary container as

backup to a primary container for the purpose of providing adequate volume capacity to contain a spill from the primary container.

Section 2. Purpose

The purpose of this Water Quality Protection Guideline is to:

- (1) provide details of water quality BMPs that may be implemented to assist in controlling pollutants associated with Commercial Landscaping and Lawn Care Services;
- (2) serve as a reference for regulators, inspectors and others who assess the water quality impacts of Commercial Landscaping and Lawn Care Services; and
- (3) provide guidance that, if implemented, will assist in securing compliance with Gwinnett County's Illicit Discharge and Illegal Connection (IDIC) Ordinance.

Section 3. Best Management Practices

3.1. Storage and Maintenance Facilities

3.1.1 Storage

- (1) All employees who use pesticides and/or fertilizers will follow all product label directions and precautions regarding storage requirements.
- (2) Pesticides and fertilizers should only be stored in their original containers and must have their labels intact. Damaged labels should be replaced.
- (3) All pesticides, fertilizers, fuels, and other potential stormwater pollutants are to be stored on an impervious surface within a contained and covered area to prevent water pollution associated with leaks and spills. An adequate storage area will:
 - i. be capable of effectively containing 110% of the volume of the largest single container stored within the area; and
 - ii. will effectively prevent the ingress of rainfall and stormwater surface runoff into the storage area. See Gwinnett County Water Quality Guideline: WQ3 Secondary Containment Design and Operation Standards for more information.

3.1.2 Equipment and Vehicle Washing

- (1) Wastewater generated during vehicle or equipment cleaning **must not** be allowed to enter into a street, storm sewer or waterway.
- (2) The washing of any equipment or vehicles that has the potential to contribute pollutants to stormwater runoff must be performed in an appropriately designed wash bay.
- (3) Wash bays shall be designed and constructed to meet three basic goals:
 - i) collect and contain waste water for appropriate disposal;
 - ii) prevent storm water runoff or rainwater from entering the wash bay; and
 - iii) prevent the intermingling of storm water with wastewater.
- (4) Washing of equipment and vehicles without the use of chemicals or detergents to remove grass clippings, dust or pollen may be completed on a grassy area.

- (5) Please refer to *Gwinnett County Water Quality Guideline WQ6 - Wash Bay Design Standards** and *WQ5 - Commercial Car Washing Operations** for more information.

*Gwinnett County Stormwater Management Division is currently developing these Water Quality Guidelines.

3.2 Work Site Management

3.2.1 Chemical Use

3.2.1.1 Handling

- (1) Product label directions and precautions must be followed by all employees to ensure proper use.
- (2) Bulk (> 5 gallons of finished product) mixing and decanting of pesticides and fertilizers should be completed in a contained and covered area or within a grassy surface at least 50 feet away from any storm drain, impervious surface or water way. Spills should be handled in accordance with Section 3.2.5 of this guideline. Mixing and decanting of small amounts (less than 5 gallons of product in its final diluted form) of pesticides and fertilizers may be completed within a grassy area at least 10 feet away from any storm drain, impervious surface or water body.
- (3) In an effort to minimize spills, closed handling systems should be used to transfer pesticides and fertilizers directly from a storage container to the application equipment (through a hose, or funnel for example).
- (4) Where possible, rinsate collected during previous equipment cleaning should be used in mixing batches of the same product.
- (5) To protect against backflow, an air gap of at least 6 inches must be left between a potable water supply hose and the top of the application equipment tank. A potable water supply hose must never be submerged directly into any reservoir containing a chemical.

3.2.1.2 Application

- (1) Product label procedures, directions and precautions must be followed at all times to ensure proper application of the product.
- (2) All local, state and federal regulations regarding application procedures must be followed.
- (3) Application equipment should be checked carefully prior to use in an effort to identify leaking hoses or connections and obstructed or worn nozzles.
- (4) Spray equipment should be calibrated as necessary to achieve required distribution and application rates.
- (5) Pesticides and fertilizers must never be applied when rain is expected, during a rain event, or during windy conditions.
- (6) Avoid applying pesticides and fertilizers on or near curbs, gutter, driveways, or other impervious surfaces as application onto these surfaces will be washed off during the next rain event and contribute to water pollution.
- (7) Spray guards should be used on equipment to reduce off-spray.
- (8) Rather than blanketing entire areas, pesticides and fertilizers should be spot applied only where necessary.

3.2.2 Chemical Disposal

3.2.2.1 Pesticide and Fertilizer Containers

- (1) After a container is emptied and prior to its disposal, empty containers should be tripled rinsed to remove all residues from within. The rinsate should then be collected and poured into the appropriate application equipment reservoir. Refer to the *Triple Rinsing Procedure* in Attachment 1.
- (2) Holes should be punched into empty containers after triple rinsing to ensure that they are not re-used.
- (3) After triple rinsing, empty containers may be properly disposed of with normal municipal trash unless the label indicates otherwise. Disposal should always be completed in accordance with all applicable federal, state and local regulations.
- (4) Pesticide and fertilizer containers should **not** be refilled or burned.
- (5) Pesticide and fertilizer containers should **not** be recycled with other general household type recyclables.
- (6) Plastic and metal containers should be recycled by approved recyclers whenever possible. USAg Recycling, Inc. will collect containers for free upon request. For more information go to www.usagrecycling.com. Only dry, empty, properly rinsed containers are accepted at collection sites. See acceptable containers fact sheet attached in Attachment 2.

3.2.2.2 Pesticides and Fertilizers

- (1) Unusable or unwanted pesticides and fertilizers must be disposed of properly. Waste pesticides are likely to be classified as hazardous waste. As such, they **MUST** be handled by a hazardous waste contractor licensed to dispose of pesticides.
- (2) The GA Department of Agriculture, Pesticides Division periodically offers free pesticide disposal through its *Georgia Clean Day* program. For information on the next *Georgia Clean Day* contact the Pesticide Division of the GA Department of Agriculture: (404) 656-4958. Such pesticides should be stored in accordance with section 3.1.1 of this guideline for disposal at the next *Georgia Clean Day*.
- (3) Waste pesticides and fertilizers must never be disposed of into a dumpster or by pouring onto the ground, into a sanitary sewer or into a storm drain.

3.2.2.3 Rinsate

- (1) Equipment used in the mixing, storage or application of pesticides and fertilizers must be cleaned in an equipment cleaning wash bay or sink that drains to the sanitary sewer. Concentrated and prepared pesticides must not be disposed of into the sanitary sewer.
- (2) Where possible rinsate should be collected and reused by placing it back into the application equipment reservoir.
- (3) Equipment rinsing stations should be used and maintained properly to minimize the potential for water pollution associated with these activities.
- (4) Equipment rinsing wash bays/sinks must be covered and contained.

3.2.3 Yard Waste Disposal

- (1) Leaves, grass clippings and other yard waste must **never** be blown, swept or dumped into a storm drain, street, driveway, drainage ditch, waterway, parking lot, or any other conveyance that provides for the collection and movement of stormwater.
- (2) Yard waste blown, swept or dumped into any stormwater conveyance constitutes a violation of Gwinnett County's Illicit Discharge and Illegal Connection Ordinance.
- (3) All yard waste should be bagged for disposal at a permitted inert landfill, composted or applied to an area of land where no possibility for entrance into the storm sewer system or a waterway exists.

3.2.4 Concrete Placement and Clean Up

- (1) Concrete placement and clean up must be done in a manner that eliminates the possibility of concrete slurry or wash water from entering into a street, storm drain, gutter, drainage ditch or any other conveyance that provides for the collection and movement of stormwater.
- (2) Equipment used in concreting should be cleaned in an area that allows for the generated wastewater to soak quickly into the ground. Acceptable cleanup locations would be within a wooded area or pine straw garden bed. Alternatively, dig a hole to receive the waste water and refill with excavated dirt once the water has soaked into the ground. Beware of underground utilities whenever you dig.
- (3) Cleanup should be completed at least 50 feet away from a storm drain, waterway or impervious surface.

3.2.5 Spill Management

- (1) All spills must be attended to immediately to minimize the potential that the spill may cause water pollution.
- (2) Spills of dry chemicals (such as pesticides or fertilizers) should be promptly swept up and reused.
- (3) Appropriate absorbent materials should be used to immediately contain and collect liquid spills.
- (4) Soil contaminated by spills must be collected and disposed of appropriately. Note: such waste should be assessed to determine whether it should be considered hazardous, and if so should be handled in accordance with all applicable regulations.
- (5) Facilities that store any type of stormwater pollutant (i.e. pesticides, herbicides, fuel) in a quantity that exceeds 55 gallons in capacity (concentrated or diluted), should develop a written spill response plan. Such a plan should simply address methods to be used in controlling a spill, notification requirements and should be reviewed with relevant employees at least annually.
- (6) All vehicles transporting pesticides or fertilizers should have a spill kit on board at all times.
- (7) In the event of a chemical spill onto a roadway, Gwinnett County's Department of Transportation must be contacted immediately at (770) 822-7400.
- (8) Any spill that exceeds 55 gallons or is of any size and enters into a storm drain or waterway must be reported to Stormwater Management Division immediately. Please call 678-376-7000 (24 hours). Additional reporting under other regulations may also be necessary.
- (9) All employees should be educated regarding the potential for water pollution associated with the use and storage of lawn care chemicals, fuels and any other substance that could

reasonably be expected to cause water pollution if it were to enter into a stream or drainage system.

3.2.6 Sediment and Erosion Control

- (1) Erosion and sediment controls should be employed whenever soil is disturbed during landscaping activities. Guidance on appropriate Sediment and Erosion control Best Management Practices are detailed within the latest version of the *Manual for Erosion and Sediment Control in Georgia (The Green Book)*. You may access a copy of this publication online at www.gaswcc.org/docs.htm. Alternatively please contact the Georgia Soil and Water Conservation Commission at 770-761-3020 to obtain a hard copy.
- (2) If the area to be disturbed is greater than one acre or of any size but within within 200 feet of a state water, a land disturbance permit will be required from Gwinnett County's Department of Planning and Development. In addition the State of Georgia has mandated that persons involved in such work must also receive specific Erosion and Sediment Control training. See www.gaswcc.org for more details.

3.3 Licensing and Training

3.3.1 Material Safety Data Sheets (MSDSs) and Product Labeling

- (1) Materials Safety Data Sheets (MSDSs) for all chemicals used or stored must be made available at all times.
- (2) All employees must be made aware of any precautions or emergency response procedures indicated on product MSDS.
- (3) All storage, application and safety instructions on MSDSs must be precisely followed.
- (4) **All** chemical products must be clearly labeled at all times. No unlabeled chemicals should be stored.

3.3.2 Employee Education

3.3.2.1 Education

- (1) All employees should be educated regarding the potential for stormwater pollution associated with the landscaping and lawn care industry.
- (2) All employees should be educated about Gwinnett County's Illicit Discharge and Illegal Connection Ordinance and be aware of penalties associated with a violation of this Ordinance.
- (3) All employees should be encouraged to further their education regarding the handling, application and disposal of pesticides and fertilizers to reduce the possibility of water pollution associated with their use. Contact Gwinnett County's Cooperative Extension Service office at 678-377-4010 to obtain information about available training.
- (4) See section 3.2.6(2) above for information on mandated Sediment and Erosion Control training.

3.3.2.2 Pesticide Operator Licensing

- (1) In order to provide pesticide applications of **any** type of pesticide to the property of another, and collect a fee for these services, both a Commercial Applicator License and a Pesticide

- Contractor License are required. These licenses are issued and administered by the Georgia Department of Agriculture's Pesticide Division.
- (2) A Pesticide Contractor's License is required by any business engaged in the activity of contracting for the application of any type of pesticide to the property of another in the state of Georgia.
 - (3) A Pesticide Contractor's License requires that each business must maintain at least one certified Commercial Pesticide Applicator in full employment during all periods of operation.
 - (4) These requirements apply to all types of pesticides (insecticides, herbicides, fungicides, algaecides), and include common use pesticides such as "Roundup" and "Weed and Feed."
 - (5) For more information regarding licensing requirements for commercial pesticide use contact the Georgia Department of Agriculture's Pesticide Division at (404) 656-4958.

Section 4. General

- (1) It is illegal to dispose of any waste or pollutants into the storm sewer system. Penalties for non-compliance include fines of up to \$1,000 and/or 60 days in county jail.
- (2) To report a spill or discharge into the storm sewer system contact Gwinnett County's Storm Water Management Division's 24-hour call center at 678-376-7000.
- (3) Additional information regarding water quality, storm water programs and storm water best management practice implementation can be obtained by contacting Gwinnett County's Storm Water Management Division at 678-376-6949 or visiting www.gwinnettstormwater.com

Attachment 1

Triple Rinsing Procedure

1. **Empty contents of container into spray tank, turning the container so that any product trapped in the handle is allowed to flow out. Once flow is down to a drip, allow the container to drain for an additional 30 seconds.**
2. **Immediately begin rinsing procedures or the product may become difficult to remove.**
3. **Fill the empty container 1/4 full of clean water.**
4. **Replace the cap on the container. With the container opening facing left, shake the container left to right over a distance of four to six inches. Shake the container about twice per second for 30 seconds.**
5. **Drain rinse water into spray tank as previously described.**
6. **Fill the empty container 1/4 full of clean water a second time.**
7. **Recap the container. With the opening of the container pointed towards the ground, shake the container as described before. Then drain the rinse water into the spray tank.**
8. **Finally, fill the empty container 1/4 full once more with clean water.**
9. **Recap the container. With the container in the normal, upright position, shake the container as described before.**
10. **Pour the rinse water into the spray tank. Carefully rinse and spray residue from the outside of the container.**



Source: www.usagrecycling.com/triple.html#Triple Rinsing

Acceptable vs. Unacceptable Containers!

ACCEPTABLE 



Thread and lip are clean.

NOT ACCEPTABLE 



Dried formulation on thread and lip.



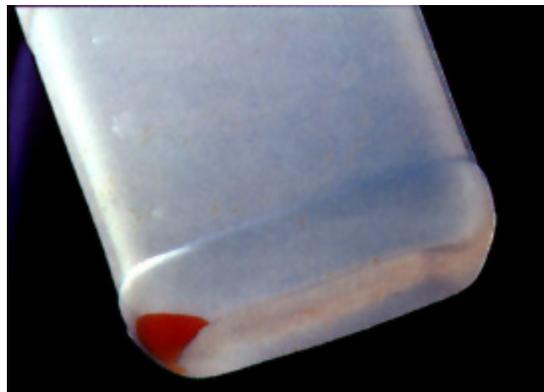
Stained but acceptable.



Stained and unacceptable.



Inside of container is dry.



Liquid is present inside container.



Inside of bottom is rinsed clean.



Bottom is caked with formulation.

To be acceptable for recycling, plastic crop protection products containers must be empty, clean, uncapped, and dry. Follow this checklist to make sure your containers are acceptable, then compare them with the above pictures.

- **EMPTY:** Plastic containers must be empty to be recycled.
- **CLEAN:** [Pressure](#) of [triple-rinse](#) the container as soon as it is emptied. Container must be cleaned or they will not be accepted into the recycling program.
- **INSPECT:** Immediately after rinsing the container, look inside and make sure that all the formulation has been rinsed out. Also inspect the outside of the container; particularly check that the pour spout, the spout threads, and the container wall surrounding the spout are free of formulation residues that flake, smear, or come off on a glove when touched. We cannot process containers that have dried formulation in or on them.
- **DISCARD CAP:** Caps are usually made of a different kind of plastic and cannot be recycled. Be sure to clean the cap at the time the container is rinsed. Never put a cap back on a cleaned container. Dispose of the cleaned caps as normal solid waste.
- **KEEP CONTAINERS DRY:** Cleaned containers must be kept out of the rain and away from the rain water. Store cleaned containers in a roofed building, an enclosed trailer, or in plastic bags.
- **LABELS:** Please Remove the instruction booklets.
- **STAINS:** Containers that originally held products known to stain plastic are acceptable for recycling if the plastic is stained but otherwise clean.

Source: www.usagrecycling.com/containers.html