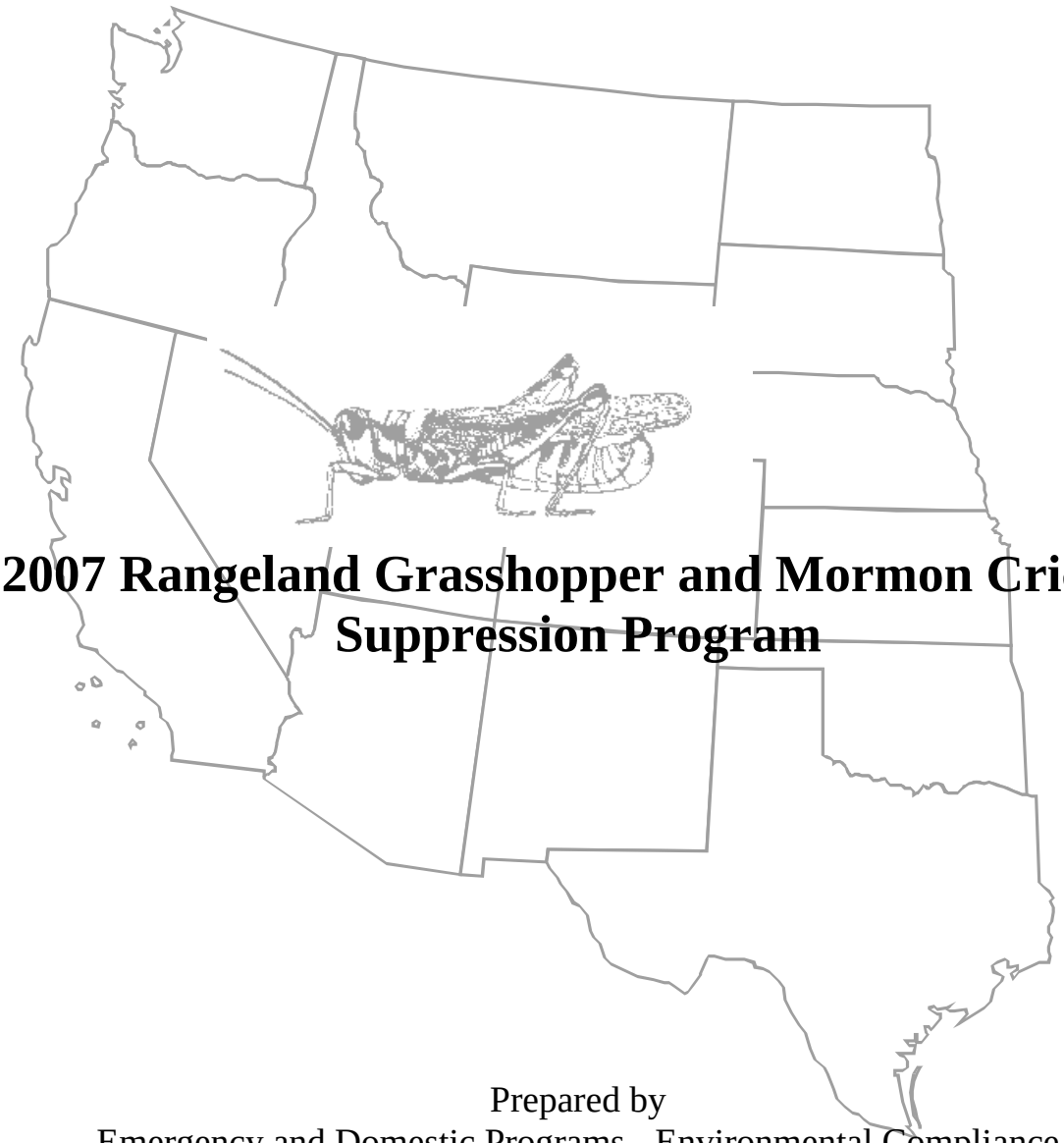
ENVIRONMENTAL MONITORING PLAN



2007 Rangeland Grasshopper and Mormon Cricket Suppression Program

Prepared by
Emergency and Domestic Programs - Environmental Compliance
Animal and Plant Health Inspection Service
United States Department of Agriculture

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GENERAL

The United States Department of Agriculture - Animal and Plant Health Inspection Service Directive 5640.1 (4/19/02) commits the Agency to a policy of fulfilling the mandates of the National Environmental Policy Act; the Endangered Species Act; the Federal Insecticide, Fungicide, and Rodenticide Act; and other statutes that require monitoring the effects of Federal programs on the environment. The monitoring described in this document partially fulfills these commitments for the Grasshopper and Mormon Cricket Suppression Program.

OBJECTIVES

1. Identify, list and prioritize any sites within or near any program treatment that might have human health or environmental concerns.
2. Demonstrate that operational procedures, mitigations and protection measures were followed and implemented.
3. Collect data which can be used to evaluate whether or not the assumptions used in the Environmental Assessment (EA) and Environmental Impact Statement (EIS) are valid estimates of potential exposure of the public, program workers, endangered and threatened (E&T) species, or other sensitive environmental components, to pesticides used by the program.
4. Demonstrate that pesticides used for all program treatments are correctly identified and are accurately formulated.
5. Conduct investigations of incidents and/or complaints about possible adverse impacts suspected of being related to program operations.

MONITORING METHODS

Note that last year, an Environmental Monitoring Plan was distributed with the sub-title "2006-2007 Rangeland Grasshopper and Mormon Cricket Suppression Program". That plan may be used for the 2007 treatment season. However, it is suggested that the updated Environmental Monitoring Plan that follows be used. Following either plan should provide adequate guidance to comply with environmental statutes, but the current plan has been streamlined and should be easier to implement. Also note that the Environmental Monitoring Team is now called Environmental Compliance, as the team is taking on roles beyond monitoring.

Before undertaking any environmental monitoring for the treatment season, contact the Environmental Compliance group in Riverdale, MD for specific guidance at (301) 734-7592 or 734-8247 if there are any questions regarding the monitoring plan.

1. Identify, list and prioritize any sites within or near any program treatment that might have human health or environmental concerns.

Prepare a comprehensive list of sensitive sites that are within 500 feet of aerial treatment locations and 200 feet of ground treatment locations. Sensitive sites are defined as human congregation sites (e.g., schools, hospitals, day care centers, prisons, playgrounds, etc.), residences, organic crops, and surface water bodies (natural, drinking, or recreational waters). Sites for endangered or threatened (E&T)

species are reported based on the distances for each species listed in the Biological Opinion and/or Biological Assessment used in compliance with the Endangered Species Act (ESA). Each species has a different critical distance to treatment sites and those distances are listed under the 'protection measures' for the species in the ESA documents. Site lists must give a brief description of the site (i.e. residence, type of protected species, name of water body, etc.), its location (either address or map coordinates), and its distance and direction from the treatment block (direction is always measured from the treatment block towards the sensitive site). Provide a copy of the site list **or** a summary of the site list (stating the number of sites in the area, E&T species in a treatment area, and that additional site information is on file in the local office) **or** a statement that there are no sensitive or E&T sites near the treatment block before any pesticides are applied (or as soon as possible after) via email, fax, or hardcopy to:

Dr. Robert Baca, USDA-APHIS, 4700 River Road, Unit 150, Room 5A04.6, Riverdale, MD 20737-1237; email robert.m.baca@usda.gov; fax 301-734-3308.

2. Demonstrate that operational procedures, mitigations and protection measures were followed and implemented.

Operational procedures, mitigations, and protection measures are detailed in the 2007 guidelines for the suppression program, the Biological Assessment for the program, and the site-specific Environmental Assessments (EA) developed locally by the program. Copies of the site-specific EA's must be forwarded to Bob Baca as they may contain procedures and measures that are in addition to those outlined in the program guidelines.

A checklist is provided on page A1; this checklist serves as self-certification that quality assurance and quality control (QA/QC) measures were adhered to for program treatments. A treatment-specific checklist will be completed for each treatment and signed by the State Plant Health Director or designee, indicating that all QA/QC activities were followed. QA/QC items in the checklist that are not relevant to the treatment should be marked as *not applicable* rather than checked. Significant deviations from any procedure should be recorded on separate sheets, along with any corrective actions taken, and attached to the checklist. At the conclusion of all program operations for the treatment season, send all signed checklists and attachments for each treatment to Bob Baca for inclusion in the Environmental Monitoring Report for the program. (For states that have multiple treatments, a single annual checklist may be submitted rather than separate checklists for each treatment.) The checklist has been simplified from previous versions, but this does not mean that operational procedures have been reduced. Guidance documents detailing operational procedures, mitigations, and protection measures are referenced in the checklist, and those details are incorporated into the checklist by reference rather than being listed again redundantly.

3. Collect data which can be used to evaluate whether or not the assumptions used in the Environmental Assessment (EA) and Environmental Impact Statement (EIS) are valid estimates of potential exposure of the public, program workers, endangered and threatened (E&T) species, or other sensitive environmental components to pesticides used by the program.

General Information:

A sampling supplies checklist and order form is provided on pages B1-2. Use this form as a reminder for bringing the appropriate number and type of supplies into the field for sampling. This form may also be used to order additional supplies from the lab.

For each treatment, conduct required monitoring for E&T species. Such monitoring is described in the Biological Opinion and/or Biological Assessment as 'protection measures' for the individual species. If a protected species is within the critical distance to a treatment listed under the protection measure, that protection measure must be fully implemented. If monitoring is required under the protection measure, such monitoring must be conducted during every treatment near that E&T species site. Some monitoring requires sampling, others only buffers or observation. Samples, buffers, and observations must all be documented, and such documentation forwarded to Bob Baca. Contact Bob if any clarification or additional guidance is needed.

For sensitive sites near treatment areas, prioritize the site list as described in standard operating procedure (SOP) EM-22, Guidelines for Selecting Environmental Monitoring Sites. (SOPs were distributed in prior years and have not changed. If any are needed, they may be obtained at www.aphis.usda.gov/ppq/pdmp/emt/support.html). Select the top three sensitive sites for monitoring for each treatment. If there are fewer than three sensitive sites, then monitor all of them. If there are no sensitive sites, no monitoring is required, and a statement noting the lack of sensitive sites for that treatment is to be forwarded to Environmental Compliance. This only applies to sensitive sites, not E&T species sites. E&T species sites are always monitored during every treatment, following the protection measures described in the ESA documents.

Dye Cards:

For aerial treatments with liquid pesticides (not carbaryl bait), sensitive sites should be monitored with dye cards as detailed in SOP EM-01, Collection of Dye Card Samples. At least one hour prior to the treatment, place 3 dye card stations between the sensitive site and the treatment boundary, directly adjacent to the sensitive site (you want to monitor drift close to the sensitive site, not to close to the treatment). Dye cards should be spaced about 30 feet apart. Collect the dye cards 2 to 4 hours after the treatment. It is critical that the correct type and number of dye cards are used for each pesticide. Use one oil-sensitive dye card for malathion or one water-sensitive dye card for liquid carbaryl at each of the three sampling stations (i.e. 3 total cards per sensitive site). Use 2 water-sensitive dye cards at each sampling station for Dimilin treatments (i.e. 6 total cards per sensitive site). Whenever dye cards are to be collected, place a blank dye card (negative control of the same type) in the vehicle used by the sample collector as described in SOP EM-10. All dye cards are to be submitted to the Analytical and Natural Products Laboratory (ANPCL) with their accompanying documentation as described below.

Please realize that neither the water- or oil-sensitive cards are marked as such. Dye cards may be identified by their coloring; oil-sensitive cards are white on both sides, water-sensitive cards are white on the label side of the card and yellow on the sensitive side. If there is any doubt as to what kind of cards you may have, put a droplet of water or oil on the sensitive side of one of your cards. The droplet that forms the black spotting on the card denotes what kind of card that it is. Take care to identify and store your cards carefully so that card-type mistakes are not made when the cards are used.

If dye cards cannot be collected because of logistical limitations, then an alternate media should be sampled after the treatment. Vegetation, wipe, water, or sediment samples (whichever is appropriate) can be collected from the sensitive site as soon as possible after the treatment (see sections below for each media). However, dye cards are preferred. Realize that there are also other triggers that require the sampling of water and sediment, and are listed below.

Sticky Boards:

For aerial treatments using carbaryl bait, sticky board traps will be used for detecting drift. At least one hour prior to the treatment, place 3 sticky boards between the sensitive site and the treatment boundary, directly adjacent to the sensitive site. The sticky boards should be spaced about 30 feet apart. Sticky boards should be erected vertically at each station (sticky side facing treatment). Collect the sticky boards from 1 to 4 hours after the treatment. Record on an APHIS 2060 form whether any bait has adhered to any of the three sticky boards, which boards had bait, and the amount of bait particles adhering described in as quantifiable a manner as practical. Submit the original 2060 form and yellow copies of the form to Bob Baca. If no bait is detected on any of the three sticky boards, then fill out one 2060 form for all three sticky boards noting that no particles were observed on the boards. Send both the white and yellow copies to Bob Baca. In either case, retain the other form copies in the local program files. No residue analysis of the sticky boards is required.

Vegetation:

Vegetation would only be collected if logistics prevented the collection of dye cards. A single composite vegetation sample should be collected from the sensitive site (or as close to the sensitive site as practical) 2 to 4 hours after the treatment. Grasses are the preferred matrix, but leafy vegetation is also acceptable. Enough sample should be collected to fill 2/3^{rds} of the foil sample bag. Guidance for collecting vegetation samples is provided in SOP EM-07, Collection of Vegetation Samples.

Wipes:

If dye cards cannot be collected, then wipe samples can be taken from structures or vehicles at human congregation sites 2 to 4 hours after the treatment. Wipe samples should only be taken from smooth hard surfaces such as car windshields, car bodies, and home windows. Guidance for collecting wipe samples is provided in SOP EM-24, Collecting Wipe Samples for Residue Analysis. If wipe samples are collected, it is extremely important that the area sampled is measured and recorded on the APHIS 2060 form.

Water:

Drinking water sources within 500 feet of aerial liquid treatment or within 200 feet of aerial bait or within 50 feet of ground bait treatment are to be sampled before and again 2 to 4 hours after any aerial treatment, regardless of whether or not dye cards are sampled. If there is rainfall sufficient to cause runoff within 1 week following any treatment, then collect another water sample within 24 hours after the rainfall. Guidance for collecting water samples is provided in SOP EM-03, Collection of Water Samples.

If the collection of dye cards (or sticky boards) is prevented because of logistics, then a sample of non-flowing water could be collected within 2 to 4 hours after treatment.

Sediment:

If rainfall sufficient to cause runoff occurs within 1 week of any treatment, then collect a sediment sample from natural surface water bodies and drinking water sources within 24 hours after the rainfall. Distances of the water body to the treatment block requiring sediment sampling are the same as for water samples above. Guidance for collecting sediment samples is provided in SOP EM-05, Collection of Sediment Samples.

4. Demonstrate that pesticides used for all program treatments are correctly identified and are accurately formulated.

Each lot of pesticide (neat) and each tank mix (formulated) used for program treatments must be sampled. All samples are submitted with either a completed PPQ Form 750 or APHIS Form 2060. Forms must:

- indicate whether the sample is a neat or formulated
- provide the lot number from which the sample originated
- describe the mixing ratio for formulated samples
- when the sample was collected
- where the sample was collected (i.e. from the nozzle, from the mixing tank, etc.)

Guidance for collecting neat and formulated pesticide samples is provided in SOP EM-10, Preparation of Control Samples and Collection of Pesticide Samples.

5. Conduct investigations of incidents and/or complaints about possible adverse impacts suspected of being related to program operations.

Investigate problems and/or complaints about possible adverse human health or environmental effects. If necessary, collect samples that will help determine if program pesticides were a potential cause of the effects. Immediately contact Environmental Compliance in Riverdale, MD at (301) 734-8247 to collaborate on a sampling plan, sampling methods, and type of information to collect. If the incident occurs whenever the above contacts are not available, commence your investigation and sampling without delay, and contact Environmental Compliance as soon as possible thereafter. Samples should be collected and shipped as soon as possible after the investigation (and freezing of samples) and must be marked as 'priority' in box 12 of the APHIS 2060 form. Samples should be collected from every matrix appropriate to determine the possible cause of the observed effect. However, dead animals other than insects should not be collected for safety reasons without first contacting Environmental Compliance. For details, see SOP EM-09, Priority (Emergency) Sampling.

SAMPLE DOCUMENTATION

Draw a clear diagram of the sensitive site and where each sample is collected, either on a Geographic Information System (GIS) map, on a separate piece of paper, or on the 2060 forms associated with the samples. If you are collecting a series of samples from the same site, submit the map and diagram only

once, as long as the site and each sample are clearly indicated on the map or the appropriate sections of the APHIS 2060 form.

Complete a separate APHIS 2060 form for each sample (noting that each dye card is considered a separate sample, each requiring a 2060 form). Instructions for completing the 2060 forms can be found on the back of each form. For each sample; submit the blue copy of the APHIS 2060 form to ANPCL with the sample, the white copy to ANPCL in the sample shipping container but separate from the sample, and the yellow copy (and any maps, photos, etc.) to Environmental Compliance. For any samples that are not sent to the laboratory for analysis (i.e. unspotted dye cards), send only the APHIS 2060 form to the Environmental Compliance. Keep the pink copy in your local office.

Properly identify each sample as "routine" or "priority" in box 12 of the 2060 form. An incorrect identification regarding the nature of the sample creates confusion for those who must interpret the data and delays the processing of samples. Mark samples as "priority" only for instances where a fast turnaround of samples is required. This applies to all complaint investigations, spill incidents, potential human health issues, and other samples considered to be of very high importance. Otherwise, mark the sample as "routine."

SHIPPING OF SAMPLES

Ship all samples using some form of overnight delivery. See SOP EM-17, Packaging and Shipping of Samples for details. This applies to all samples, whether they are priority or routine. Do not ship samples using USPS Priority Mail or standard ground service with other carriers. Overnight delivery allows the sample to stay frozen or at least cold. Shipping any other way will take no less than 2-3 days, causing the ice and sample to melt, which will ruin the sample.

With the exception of neat (pure) chemical, be sure that all samples are frozen, shipped in a cooler box (not a regular cardboard box), and kept frozen during shipment. Neat samples should not be frozen, but should be placed on ice in a cooler box when shipped. To keep samples cold, use dry ice when possible since it does not turn to liquid when warmed and will therefore not ruin any forms or samples. However, if water samples are shipped, do not use dry ice, since it will cause the sample containers to crack or break. Since dry ice may not be available in all areas, regular ice can be used for shipping any samples, but only if the ice is placed in a separate sealed container. Either use "blue ice" containers (the reusable plastic containers with the blue liquid inside) or contained regular ice (that is, seal the ice in zip-loc bags). Unsealed ice will melt and leak during shipment, causing unnecessary concern when received at the laboratory and possibly damaging the samples and documentation.

DISCRETIONARY MONITORING

Additional monitoring samples can be collected at the discretion of program staff. Although the monitoring outlined in this plan should be adequate to generate the data needed to meet the objectives, the program may decide that additional sampling is necessary around other sensitive areas. Examples might include sites where there have been issues in previous years, sites that are highly visible to the public or are politically sensitive, or sites where environmental monitoring might help prevent future conflicts. A more thorough monitoring plan involving any of these cases can be developed by Environmental Compliance in Riverdale if requested.

RESPONSIBILITIES

APHIS-PPQ Field Personnel or Cooperators, under the direction of the Program Director, will:

a. Ensure that sufficient resources from the program are allocated for completing the monitoring detailed in this environmental monitoring plan (EMP).
b. Coordinate with federal and local wildlife officials to identify E&T species habitats near or within areas that may be affected by program activities, and inform Environmental Compliance in Riverdale about any protection measures and monitoring requirements.
c. Implement appropriate operational procedures, mitigations, and protection measures.
d. Prepare a comprehensive list of all sensitive sites in a treatment program area and send to the Environmental Compliance, preferably prior to the start of a treatment.
e. Select monitoring sites for sampling, collect samples, record all relevant environmental and sample data, and submit samples to ANPCL for residue analysis.
f. Submit information describing the sample, sampling site, and treatment to Environmental Compliance in Riverdale, MD.
g. Complete QA/QC checklists for treatment programs. No later than the final treatment program within a state, sign and forward all checklists to Environmental Compliance.
h. Inform Environmental Compliance when priority samples are collected and ANPCL when priority samples are shipped.

APHIS-PPQ Environmental Compliance staff in Riverdale, MD will:

a. Provide training and support for the implementation of this monitoring plan.
b. Respond to requests for additional information by field personnel when special sampling requirements occur.
c. Review and interpret pesticide residue data.
    (1) If adverse environmental effects are suspected: inform the Program Director and the National Program Manager, make recommendations if modifications to program operations might be in order, and reinitiate consultation with the Fish and Wildlife Service or National Marine Fisheries Service, if needed.
    (2) Send raw data for any priority samples within 1 working day of receipt from ANPCL to the environmental monitoring coordinator.
    (3) Prepare a final report within 90 days of analysis of all samples by ANPCL.
d. Maintain liaison with field personnel to assure monitoring is being conducted and to review pertinent documentation for accuracy and completeness. Feedback to field personnel will be done in a timely manner so procedures can be modified, if needed.

APHIS-PPQ Analytical and Natural Products Chemistry Laboratory staff in Gulfport, MS will:

a. Prepare and ship sampling containers and equipment required for collection and submission of environmental monitoring samples.
b. Provide instructions and training on methods for collecting, preserving, and shipping samples.
c. Analyze samples for the program pesticides specified on the associated 2060 Form.
d. Input APHIS Form 2060 data into the database system at ANPCL. Send data to Environmental Compliance electronically within 23 working days of sample receipt for routine samples and 5 working days for priority samples.

2007 Rangeland Grasshopper and Mormon Cricket Suppression Program
Quality Assurance/Quality Control Checklist

The following checklist shall be completed following the completion of a suppression program treatment (or season for areas with multiple treatments). When an item listed in the checklist does not apply, leave the box blank. For any significant deviations from operating procedures, provide an explanation on additional paper.

State: _____ Counties/Area Treated: _____

Treatment Dates: _____ Total Acres Treated: _____

Treatment Type (circle appropriate): Aerial Application and/or Ground Application

- ❑ All procedures in the 2007 Guidelines for the Program were followed (they are not included individually below). If <u>any</u> item was not followed, such item is noted below or on additional paper with an explanation for why that item was not applicable or not implemented. Documentation of implementing the procedures in the Guidelines was maintained locally and is available upon request.
- ❑ Site-specific Environmental Assessments (EAs) and Findings of No Significant Impact (FONSIs) were developed. Final copies were forwarded to the Environmental Compliance group in Riverdale, MD.
- ❑ The public was involved in the development of environmental compliance documents, if required by the National Environmental Policy Act (NEPA).
- ❑ Provided list(s) of sensitive sites and protected species sites, or a negative report to the Environmental Compliance group.
- ❑ Completed ESA Section 7 consultations with USFWS and /or NMFS prior to any treatments, and implemented all protection measures as required.
- ❑ Implemented the current Environmental Monitoring Plan for the Program.
- ❑ Spill kit was present at APHIS-operated pesticide storage areas. The PPQ Treatment Manual, Guidelines for Managing Pesticide Spills was followed at APHIS locations.
- ❑ EPA and State approved label for all pesticides were strictly followed.
- ❑ Current pesticide labels and material safety data sheets were available to program staff.
- ❑ Collected and mailed samples of neat and formulated pesticide to ANPCL for analysis.
- ❑ Documented complaints and recorded visits and telephone calls from the public regarding program activities and responses to any complaints.
- ❑ Documented any accidents, safety violations, pesticide spills, and leaks in aircraft systems or pesticide storage and loading systems.
- ❑ Weather conditions were monitored and recorded before and/or during applications. Weather log completed and on file.
- ❑ Maintained and have on file daily and base logs. Flight paths and spray turn-on and cut-offs were monitored and recorded either by direct observation or by downloaded GPS flight data overlaid onto a map.
- ❑ The public near treatment areas was notified prior to the application of pesticides.

_____ _____

Program Director/SPHD/Environmental Monitor Signature Date

<u>Send completed checklist to:</u>

Bob Baca, USDA-APHIS-PPQ, 4700 River Road, Unit 150 – Room 5A04.6, Riverdale, MD 20737

ENVIRONMENTAL MONITORING SUPPLIES CHECKLIST

SUPPLIES TO BRING EACH TIME YOU GO TO A SAMPLING SITE					
Monitoring plan/SOP's		Obtain from EMT	Thermometer		
Field log notebook			Ice chest/wet or blue ice		Obtain locally
Compass			Baby wipes		
Wind gauge			2060 monitoring forms		
Indelible marker			Packing/strapping tape		

A.R.S.E. (Run-off Sampling)			Dye Cards		
Plexiglas cover			Oil sensitive dye cards		
8"x 8" mesh screen			Water sensitive dye cards		
Tent pegs/nails			5' bamboo poles/stakes		
Funnels attached to caps			Paper/alligator clips		
500 ml bottles			Tacks		
4" PVC pipe, 14" long			4" x 4" plastic bags		
Post hole digger			12" x 12" plastic bags		
Pea gravel			Tweezers/forceps		
Large rocks/bricks			disposable gloves		
Bamboo pole/flagging tape			**Water Samples**		
collapsible cubitainer			Dissolved oxygen kit		
Sodium sulfate (small vials)			collapsible cubitainer		
pH paper/pH meter			Sodium sulfate (small vials)		
Sulfuric acid (squeeze bottle)			pH paper/pH meter		
Styrofoam Acoffin@			Sulfuric acid (squeeze bottle)		

Vegetation/Fish/Insect Samples			Sediment Samples		
Pruning sheers/scissors			Dredge tied to strong rope		
Aluminum foil envelopes			3 gallon galvanized pail		
Strapping tape			Hand trowel		
			3" mesh screen		
			Aluminum foil envelopes		

Soil Samples			Swab/Wipe Samples		
Soil core sampler			3” x 3” sterile cotton pads with resealable plastic bag		
3 gallon galvanized pail			Metric ruler		
Hand trowel			Pencil		
3" mesh screen			Disposable gloves		
Aluminum foil envelopes			Isopropyl alcohol		Obtain locally
Baby wipes					

Neat (Pure) Chemical Formulations			Miscellaneous Supplies		
Amber glass bottle			Labels		
Parafilm			Styrofoam coolers/mailers		
Small mailing tubes			Freezer		Obtain locally
Cat litter/packing material			Dry ice		Obtain locally
Disposable pipette			Resealable plastic bags:		
Pipetting bulb			4" x 4"		
Disposable gloves			6" x 6"		
Protective eyewear			8" x 8"		
			12" x 12"		

Program: _____ **Requested by: _____**

Date: _____ **Phone: _____**

Address: _____

_____

_____

To order supplies, indicate the quantity of each items needed. Fax a copy of this form to ANPCL at 228-822-3209 or 228-822-3137. If fax machines are not working, leave a message with the ANPCL supplies manager at 228-822-3106. Please realize that it may be difficult to completely fill order for large quantities of materials.

Note: This is not an exhaustive supply list…items that are not listed here may be available through ANPCL.