

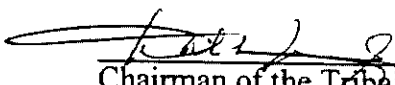
**RESOLUTION OF THE  
WHITE MOUNTAIN APACHE TRIBE OF THE  
FORT APACHE INDIAN RESERVATION**

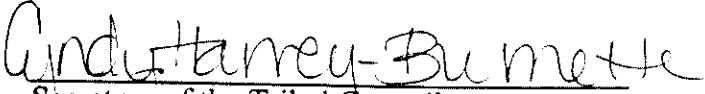
- WHEREAS**, it is the policy of the White Mountain Apache Tribe to protect human health, the environment, and the Tribe's priceless natural resources, including its water above and below ground; and
- WHEREAS**, the Tribe's Water Quality Protection Ordinance sets forth the Tribe's anti-degradation policy; and
- WHEREAS**, the Tribal Council of the White Mountain Apache Tribe has determined that it is in the best interest of the Tribe to adopt a plan that governs the application of pesticides, herbicides, and biotics on the Reservation and provides for the protection of Tribal groundwater and surface water from degradation by pesticides and herbicides; and
- WHEREAS**, the White Mountain Apache Tribe Hydrology and Water Resources Program applied for and received funding from the U.S. Environmental Protection Agency to develop a Groundwater Pesticides Management Plan; and
- WHEREAS**, the attached Groundwater-Pesticides Management Plan provides for protection of the Tribe's surface and groundwater through a pesticide permit process.

**BE IT RESOLVED** by the Tribal Council of the White Mountain Apache Tribe that it hereby approves and adopts the provisions of the Groundwater-Pesticides Management Plan.

**BE IT FURTHER RESOLVED** by the Tribal Council of the White Mountain Apache Tribe that it hereby directs the Tribal Legal Department to prepare proposed amendments to the Environmental Code of the White Mountain Apache Tribe for review by the Council at a later date that incorporate key components of the Management Plan and provide for enforcement of a Tribally-approved pesticide permit and that set forth both civil and criminal penalties for violating a permit.

The foregoing resolution was on November 30, 2001 duly adopted by a vote of SIX for and ZERO against by the Tribal Council of the White Mountain Apache Tribe, pursuant to authority vested in it by Article IV, Section 1 (a), (c), (d), (f), (h), (i), (j), (k), (s), (t), and (u) of the Constitution of the Tribe, ratified by the Tribe September 30, 1993, and approved by the Secretary of the Interior on November 12, 1993, pursuant to Section 16 of the Act of June 18, 1934 (48 Stat. 984).

  
Chairman of the Tribal Council

  
Secretary of the Tribal Council



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groundwater, or in fish tissue will be a cause for concern. The Tribe may take a number of immediate and long-term response actions, including both the temporary and permanent suspension of use of that pesticide on the Reservation.

Additional objectives of the Tribe's groundwater protection strategy include:

- Working cooperatively with federal agencies to assure the United States fulfills its trust responsibilities to the Tribe by protecting, maintaining, and restoring the natural condition of all surface waters and groundwaters within the exterior boundaries of the Reservation.
- Establishing well-head protection areas, source-water protection zones, and measures to protect all areas vulnerable to pesticide contamination on the Fort Apache Indian Reservation.
- Banning the use of pesticides known to leach and contaminate groundwater unless no other less toxic alternative exists and a determination is made that the economic benefits, both short- and long-term, to the Tribe outweigh a restriction on its use.

## **II. Jurisdiction and Authority**

The Tribe's authority to implement the guidance set forth in this plan and take enforcement actions to support the protection of human health and the environment from contamination by pesticides, herbicides, and other toxic chemicals, is based on the constitution of the White Mountain Apache Tribe: on the Tribe's inherent and aboriginal sovereign authority which includes, but is not limited to, the authority to regulate conduct that threatens or has some direct effect on the Tribe's political integrity, economic security, or health or welfare of the Tribe; on authority delegated to the Tribe under federal law; on the Tribe's authority to regulate the conduct of its members and activities within its lands, and on Tribal Resolution \_\_\_\_\_. This authority extends to all conduct of members and non-members anywhere within the exterior boundaries of the Reservation, notwithstanding the issuance of any patent, that violates any provision of this plan.

The *Tribal Environmental Code* provides for Tribal regulation of hazardous chemicals, including pesticides. The Tribal Legal Department is currently revising the Environmental Code to provide legal enforcement of permit violations, including failure to obtain a permit when one is required, and is the basis for exacting penalties against parties who fail to comply with this plan.

## **III. Definitions**

"Pesticide" - any product used for the elimination of pests (eg, rodents, insects, worms), including herbicides (chemicals used for eliminating plants), biotics, and disinfectants.

- ii. to prevent inappropriate use of pesticides on the Reservation;
- iii. to prevent any pesticides from inadvertently leaving the site of application through surface runoff, infiltration, wind dispersal, or by other means; and
- iv. to protect cultural values, including native flora and fauna as well as commercial fisheries and livestock.

The Tribal Hydrology and Water Resources Program, in conjunction with the Tribal Environmental Planning Office, is responsible for tracking pesticide use on the Reservation.

1. Conditions Requiring Permit

Each prospective pesticide user must submit an "Application for Tribal Pesticides Use Permit" (Appendix B) to the Hydrology and Water Resources Program prior to any pesticide<sup>1</sup> use on Tribal lands that meets one or more of the following criteria:

- area coverage equal to, or exceeding, one (1) acre; or
- volume of chemical to be *applied, stored, or disposed* equal to, or exceeding five (5) gallons; or
- any application by a non-Tribal agency or other entity, regardless of area or volume; or
- use, storage, or disposal of a restricted-use pesticide

A permit must be obtained for each chemical applied and for each application event. Each application for a pesticides use permit must be accompanied by a copy of the product label and Materials Safety Data Sheet (MSDS) to ensure accurate documentation of substances, proper application purpose, and appropriate application method. All "restricted-use" pesticides (as categorized by the U.S. EPA) will also require documented proof of a certified applicator. No chemicals banned by the State of Arizona or by the U.S. EPA shall be applied on Tribal lands. The Tribe may, in the future, add to the list of chemicals banned from use on the Reservation.

2. Permit Fee and Bond

A processing fee of fifty dollars (\$50) will be assessed by the Tribal Hydrology and Water Resources Program to cover basic costs of administering the permit system. Additional fees may be assessed for monitoring (sampling and analysis)

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<sup>1</sup>Note definition of "pesticides" provided in Section III of this document.

Upon approval of the pesticides permit application<sup>2</sup>, the Tribal Hydrologist (or his/her designee) will issue a Pesticides Use Permit to the applicant. The permit allows only the designated uses<sup>3</sup> specifically stated on the permit. No substitutions of any kind (including applicator) may be made to the permitted use without written consent from the Tribal Hydrologist or his/her designee.

B. Working Group

A Tribal Groundwater-Pesticides Management Plan Working Group was formed to develop and implement this plan to protect the groundwater resources on the Fort Apache Indian Reservation. The working group consists of representatives from eight Tribal programs (Hydrology and Water Resources Program, Environmental Planning Office, Tribal Emergency Response Commission, Tribal Farm, Wildlife and Outdoor Recreation, Tribal Forestry, Cultural Preservation, and Community Services) and the BIA-Fort Apache Agency Environmental Quality Services Officer. Each member of the working group assists through the provision of technical expertise, resource data, coordination, and/or monitoring assistance.

C. Environmental Compliance

All pesticides are considered toxic chemicals. As such, their use, storage, and disposal on the Fort Apache Indian Reservation is regulated under the Tribal Environment Code and Tribal Water Quality Ordinance, and other applicable Tribal laws and regulations (refer to Section II of this document).

In the event of a permit violation (including failure to obtain a permit when required), the Tribal Environmental Planning Program Manager is responsible for issuing a "Warning of Violation" or "Notice of Violation" to the person/entity responsible for the violation. The Warning of Violation will specify the terms under which the minor problem may be rectified without penalty. The Notice of Violation will be issued in the event of a severe violation and will specify the terms of remediation and serve as notification that the matter is being turned over to the Tribal Legal Department for prosecution.

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<sup>2</sup>The Tribal Hydrologist will forward any applications for pesticides use exceeding 10 gallons or covering more than 5 acres, or for any restricted-use pesticide, to the Tribal Plan and Project Review panel for review and approval.

<sup>3</sup>The term "uses" includes the purpose, chemical, site, method, and frequency of pesticide application, storage, and/or disposal.

**V. Related Law and Policy of the White Mountain Apache Tribe**

**A. Tribal Environmental Code**

Chapter One of the Environmental Code of the White Mountain Apache Tribe establishes a program for management of hazardous chemicals on the Reservation. It establishes a Tribal Emergency Response Commission and a Local Emergency Planning Committee. It also sets forth facility notification requirements necessary for the development and implementation of a Tribal Emergency Response Plan. This plan is currently under development, but a draft version of the plan spells out critical chain-of-command emergency response procedures and serves as the working plan at this time. Chapter One of the Environmental Code also contains reporting requirements which provide the Tribal community with important information on the nature, location, and quantity of hazardous chemicals in their community.

As described in Section IV.D. of this document (Emergency Response), the Tribal Emergency Response Commission (TERC) is responsible for initial response to reported chemical releases to the environment or other incidents involving human exposure to toxic chemicals.

Section 1.9 of Chapter One of the Environmental Code outlines conditions under which a facility on the Fort Apache Indian Reservation is subject to emergency planning requirements. The Tribal regulations for quantities of "extremely hazardous substances" (which include some pesticides) that can be stored within any facility or used by any entity on the Reservation are based on "threshold planning quantities" listed in § 302 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (P.L. 99-499) currently found at 40 CFR § 355, Appendix A and B. These Federal Register documents can currently be found on the Internet at [http://www.access.gpo.gov/nara/cfr/waisidx\\_00/40cfr355\\_00.html](http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr355_00.html).

**B. Tribal Water Quality Protection Ordinance**

The White Mountain Apache Tribe has inherent sovereign authority to regulate water quality on the Reservation. It also has primacy to implement the federal water quality program under the Clean Water Act. The Tribe monitors water quality to meet the requirements of the Tribal Water Quality Protection Ordinance and the federal Clean Water Act. The purposes of the Water Quality Protection Ordinance are as follows:

1. To promote the health of Tribal waters and the people, plants, and wildlife that depend on them through holistic management and sustainable use;
2. To designate the existing and attainable uses for which the surface water of the White Mountain Apache Tribe shall be protected;
3. To prescribe water quality standards to sustain the designated uses; and

Tribe and a trust responsibility to assist the Tribe in protection of the Reservation environment. The agency is directly responsible for providing technical assistance in the development of this Tribal Groundwater-Pesticides Management Plan.

1. Federal Insecticide, Fungicide and Rodenticide Act

The U.S. EPA administers the regulation of pesticides and provides the authority for the Tribe to regulate pesticides on the Reservation. Until the Tribe assumes primacy in pesticides regulation, the U.S. EPA will identify pesticides that require either a generic or a specific groundwater protection plan as a prerequisite for their use. For these pesticides, the Tribal Hydrology and Water Resources Program, in conjunction with the GPMP Working Group, and in consultation with the Tribal Watershed and Environmental Planning Programs, will decide whether or not to develop a pesticide-specific management plan. In any case where the Tribe chooses not to develop the required plan, the use of that pesticide is banned on the Reservation.

2. Clean Water Act

The Clean Water Act establishes the national goal to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The U.S. E.P.A. is responsible for promulgating, publishing, and updating ambient water quality criteria. These criteria provide guidance on environmental effects of pollutants in Section 304 of the Act. They provide the basis for the development of Tribal standards. Similarly, the U.S. EPA is responsible for developing health-based maximum contaminant levels.

The Clean Water Act establishes a point-source permit program under Section 402 and non-point control programs under Section 319. The Tribal Environmental Planning Program Manager is responsible for coordinating these permits on the Reservation with U.S. EPA.

3. Safe Drinking Water Act

The Safe Drinking Water Act establishes the authority for the designation of federally recognized sole-source aquifers and well-head protection areas. As part of its source water protection efforts, the Tribe has proposed its own well-head protection and source water protection areas. The Tribal Utility Authority, with assistance from the Tribal Environmental Planning Office, produces and distributes to the public an annual "Consumer Confidence Report" informing them of the condition of their drinking water.



Assistance Program Grant funding from U.S. EPA. Administrative funds for the GPMP implementation will also derive from fees collected as part of the permitting process (see Section IV.A) set forth in this plan. As implementation of the plan proceeds, additional funds and technical assistance may be sought from U.S. EPA, BIA, and/or other agencies.

## VIII. Basis for Assessment and Planning

### A. Approach Overview

Protection of human health and water resources for present and future generations of White Mountain Apaches is the central objective of this GPMP. At present, the vast majority of Fort Apache Indian Reservation residents depend on groundwater for their drinking water supplies. In addition to drinking water, surface water and springs dependent on groundwater are exceptionally important cultural values for the White Mountain Apache Tribe. Recreational and ceremonial use of lakes, streams, and springs by Tribal members and preservation of natural ecosystems are inseparable and equally important objectives for the Tribe.

Protection of groundwater in close hydrologic contact with surface water, and those currently used, or anticipated for future use, as drinking water supplies are the top priorities for protection under this plan. Included in this high priority group are springs with special cultural significance, especially those used for ceremonial and/or drinking water purposes. Because remediation of contaminated groundwater is generally impractical, the overriding goal of this GPMP is to prevent contamination by pesticides of any and all water resources on the Reservation.

### B. Source Water Assessment and Protection

The Tribe's Source Water Assessment and Protection program (implemented by the Tribal Hydrology and Water Resources Program with funding from U.S. EPA) is presently delineating source water contributing zones for municipal and domestic drinking water supplies on the Reservation. These zones, once approved and adopted by the Tribal Council, will serve as a basis for prioritizing groundwater protection from pesticides and other hazardous materials. Other high-priority protection areas will be defined on the basis of known and probable aquifer recharge areas and areas of anticipated future development.

### C. Pesticides Use Inventory

As part of the planning process for developing this GPMP, the Tribal Hydrology and Water Resources Program conducted an inventory of all pesticide use and storage by Tribal, federal, and state agencies on the Reservation. The results of this inventory are contained in a binder in the Tribal Hydrologist's office. The general findings of the inventory can be summarized as follows:

- Pesticide use on the Fort Apache Indian Reservation is generally low.
- Schools, Tribal, BIA, and IHS facilities receive regular pesticides treatments by local pest management companies.

For any proposed applications of more than five (5) gallons or more than one (1) acre on the Fort Apache Indian Reservation, or at the discretion of the Tribal entities responsible for approving the pesticides use permit, the applicant may be required to consent to a monitoring plan to evaluate pre- and post-application site conditions. Depending on the site, samples may include soil and/or water media. Tribal Hydrology and Water Resources Program, Environmental Planning Office, and/or Watershed Program as well as BIA Environmental Quality Services staff may handle collection and processing of samples for the applicant. Pre-application samples will serve to document background conditions and will allow for accurate assessment of impacts from pesticides applications at the site.

#### B. Sampling Rationale

Each approved pesticides permit will include a list of conditions for approval, including requirements for sampling. The timing and frequency of sampling and the list of analytes will be determined on a case-by-case basis by the entities responsible for approving the permit (see Section IV). In general, sampling plans will be designed to document background conditions in soil, shallow groundwater (if any), and ponds, lakes, or springs (if any), and will target potential runoff pathways. All permits will have the stated objective of preventing any and all pesticides from leaving the site of application. The extent of sampling will be commensurate with the estimated risk to humans and natural resources as indicated by: a) leaching potential and environmental persistence of chemical compound; b) proximity to areas frequented by humans such as schools, churches, etc.; c) proximity to important water resources; d) vulnerability of underlying and downgradient groundwater; e) potential for surface runoff and/or wind dispersal (including consideration for season of application); and e) cultural values requiring additional safeguards.

### X. Preventative Actions

#### A. Groundwater Protection Approach

All groundwater under the surface of the Reservation is important, and it is the Tribe's policy to protect its natural resources from contamination. At the same time, the Tribe recognizes the inherent difficulty of managing water resources with the small staff and limited fiscal resources available. The groundwater protection effort will employ three strategies to focus its prevention-based effort to protect those resources most vulnerable to contamination. First, certain resources such as surface waters or wetlands are so important that activities that directly impact these resources are forbidden. For example, the direct application of a pesticide to a stream or wetland through aerial application is prohibited. Second, an effort will be made to evaluate the potential for a pesticide to contaminate groundwater by considering the chemical properties of the pesticide, the extent of its use, and the vulnerability of the groundwater system.

Ongoing efforts by the Tribal natural resources programs<sup>1</sup> to collect additional data and provide a better understanding of the natural resources of the Reservation will continue. As new information on the condition of natural resources and on the toxicity and fate of pesticides becomes available, the Tribe will update and revise its protection efforts. Education is an important component to the Tribe's overall groundwater protection approach and pesticide management program.

#### B. Resource Sensitivity and Vulnerability

The vulnerability of a groundwater resource to contamination is closely tied to its sensitivity to factors, both natural and cultural, controlling contaminant transport. *Sensitivity* describes the degree of perturbation in the natural system required for a response. For example, natural sensitivity to contamination exists at sites with soils which readily transmit contaminants (sands versus clays), surface water (an immediate conduit to wildlife and shallow groundwater), and/or fractured bedrock. At these sites, introducing even small concentrations of contaminants, especially during periods of heavy rain, may have broad repercussions because the contaminants may move rapidly through the system to a point where humans or other living organisms are impacted.

The *vulnerability* of groundwater to contamination by pesticides depends upon both natural sensitivity as well as cultural factors. The proximity of the site to community and individual wells (which can serve as contaminant conduits from the surface to groundwater), the method of chemical application, the type of crops raised (and associated agricultural practices), and the environmental persistence of each pesticide all contribute to the vulnerability of underlying groundwater. All other things being equal, more sensitive sites will be more vulnerable than less sensitive sites. However, a sensitive site with no cultural risk factors would not be considered vulnerable.

Two types of cultural infrastructure investments increase aquifer vulnerability. The first is community and individual wells. All wells represent potential pathways for contaminants to reach groundwater, but community wells are potential contamination vectors for large numbers of people and represent substantial Tribal investments in facilities developed to protect Tribal and non-Tribal members. **Protecting these wells from contamination either through the well head or via recharge is vital to the health and welfare of the White Mountain Apache people.** The second type of infrastructure investment that exacerbates aquifer vulnerability to contamination is irrigated agriculture. Irrigation, by definition, involves bringing more moisture than naturally would be available to a site. This additional water can transport pesticides that would otherwise be less likely to migrate into the groundwater system. By reducing the time a

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<sup>1</sup>Tribal natural resource programs include Environmental Planning, Hydrology and Water Resources, Watershed Planning, Wildlife and Outdoor Recreation, and Forestry programs.

Table 1

**Ground Water and Pesticides Vulnerability Action Matrix**

		Groundwater/Surface Water Condition at Application Site				
		sensitive aquifer	less sensitive aquifer or no aquifer	within 300 ft. of surface water	300-1000 ft. from surface water	source water protection area
<b>Pesticide Condition</b>	pesticide-specific mgt. plan required by U.S. EPA	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>
	restricted use label	site-specific mgt. plan	required BMPs	prohibited	site-specific mgt. plan	site-specific mgt. plan
	pesticide detected in groundwater on Fort Apache Indian Reservation	prohibited	site-specific mgt. plan	prohibited	prohibited	prohibited
	detected in groundwater elsewhere in U.S.	site-specific mgt. plan	required BMPs	prohibited	site-specific mgt. plan	site-specific mgt. plan
	registered pesticide (non-restricted use)	required BMPs	voluntary BMPs	required BMPs	voluntary BMPs	site-specific mgt. plan
	non-registered pesticide	prohibited	prohibited	prohibited	prohibited	prohibited

<sup>†</sup> unless the Tribe develops a formal pesticide-specific management plan

**XI. Response to Detections of Pesticides**

The ultimate successful outcome of the prevention activities outlined in Section X of this plan would be perpetual maintenance of soil and water contaminant levels below detection limits. In lieu of that achievement, the best possible outcome is that any detection of pesticide in groundwater, soil, or surface water becomes reason for concern and triggers mitigation efforts designed to protect human health and the environment.

**A. Detection in Groundwater**

In the event that a pesticide is detected at any level in groundwater, the Tribe will undertake an immediate investigation to determine and *halt* the cause of the contamination. The results of that

will provide the basis for taking action beyond the site-specific remediation plan to protect human health. In the event that the contamination presents a risk to public drinking water sources, immediate action to discontinue production from that aquifer and to advise the public of the risk is required. The Tribal Utility Authority shall be informed of the problem and notified that all pumping from wells in that area must stop until further notice.

#### B. Detection in Soil

Any detection of a pesticide in soil as part of a site-specific management plan shall be cause for re-evaluation of that plan. Contamination extending for a period of one (1) month or more, will be cause for concern and will trigger an investigation into the source and cause of the contamination (see Section XI.A above). The Tribal Hydrology and Water Resources Program, with assistance from the Environmental Planning Office, will take primary responsibility for coordinating the investigation. The pesticide permittee is responsible for development and execution of the remediation plan, but the plan must be approved in writing by the Tribal Hydrologist. At a minimum, the remediation plan should include:

- i. a sampling plan (may include groundwater, surface water, soil, air, or other media) to monitor the effectiveness of mitigation measures, including sampling sites, number of samples, analytes, frequency and duration of sampling, and quality assurance protocols.
- ii. actions to address the source (may include halting irrigation, halting pesticides applications; excavating contaminated soil, etc.);
- iii. actions to remediate the soil system (may include removal of contaminated soil, application of biological degradation agents, etc., and preliminary trials to evaluate the effectiveness of the action(s));
- iv. designation of party or parties responsible for executing the sampling and remedial actions;
- v. time line for implementing the sampling and remedial actions.

If soil contamination poses an immediate risk to drinking water sources, action to cease production from the underlying aquifer and to notify the public of the risk is required. The Tribal Utility Authority shall be informed of the problem and notified that all pumping from wells in that area must stop until further notice.

#### C. Air-borne Transmission

Pesticides sampling on lands adjacent to sites of aerial or large-scale spraying applications must be incorporated into site-specific management plans for those applications. Any detection of pesticides on any land where no pesticide was intentionally applied will be cause for concern, and will trigger an immediate investigation into the source and cause of the contamination. As a precaution, the Tribal Hydrologist or his/her designee (or Environmental Planning Programs

1. The target audience for public notification are residents of the Fort Apache Indian Reservation, as well as any other individuals who may be impacted by pesticides contamination on the Reservation.
2. Methods used to reach the public may include, but are not limited to, radio announcements on the local station (KNNB), door-to-door notifications, and articles in the Fort Apache Scout newspaper.
3. In the case of an imminent risk to human health, radio announcements and attempts to personally contact individual residents living and/or working in the impacted area will be undertaken.

### **XIII. Records and Reporting**

The Tribal Hydrology and Water Resources Program will maintain records relating to the implementation of this GPMP indefinitely. Information in these records will include, at a minimum:

- permits issued.
- monitoring or sampling conducted as part of a permitted or non-permitted pesticides use.
- results of analyses.
- reports issued.
- types and numbers of enforcement actions taken.
- records of any site-specific regulatory actions, and
- administrative actions.

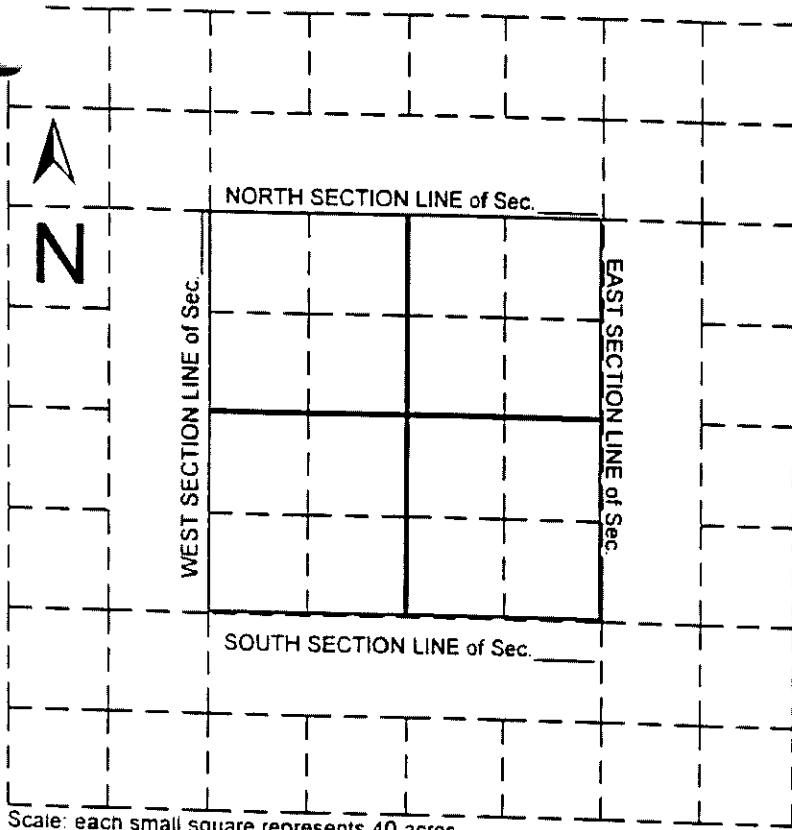
**Appendix B**

**Application for Tribal Pesticides Use Permit**



5) MAPPED LOCATION OF PROPOSED APPLICATION

Use the CENTER section (1 section, 640 acres) for the site location.



6) SURFACE WATER BODIES: Name and Distance of all within 5 mile radius.

7) SCHOOLS: Name and Distance of all within 5 mile radius.

8) COMMUNITIES: Name and Distance of all within 5 mile radius.

9) CEMETERY WITHIN 2 MILES? Y N

10) CHEMICAL TO BE APPLIED:

NAME AND BRAND:

RESTRICTED USE? Y N

\*\*\* ATTACH COPY OF LABEL AND MSDS \*\*\*

11) APPLICATION

METHOD (aerial, hand-spray, traps, etc.):

MIXING AGENTS (describe substance and method):

RATE (amount per sq-ft, acre, etc.):

FREQUENCY (no. times/mo or year):

\*\*\* ATTACH MAP OF APPLICATION AREA \*\*\*

WMAT HYDROLOGY & WATER RESOURCES OFFICE USE ONLY: NOT WRITE IN AREA BELOW

BASIN

SUBWATERSHED

Elevation of Land Surface at Site: ft.

Surface Geology:

Underlying Aquifer Unit(s)	Depth(ft)	Thickness (ft)

WELLS: Name and location of all within 5 mile radius.

Tribal Plan & Project Review Approved? Y N

by (name) (date)

logist:

3) Purpose of Application

Describe the reason for applying the pesticide/herbicide (eg, rodents, roaches, ants, weeds, etc.). If applying to a crop, specify the type of crop and indicate whether or not it is intended for human consumption by circling "Y" for yes or "N" for no.

APPLICATOR

Give the name and contact information for the person who will be applying the chemical. Give the applicator's Arizona, EPA, or Tribal Pesticides Applicator Certification number, if one exists. All applicators must be certified by the U.S. EPA, the State of Arizona, or the White Mountain Apache Tribe.

5) Mapped Location of Proposed Application Site

Similar to Section (2) above, this area provides more detailed information on the proposed application site's location. The center blocks represent one Section divided into four quadrants, with each quadrant divided into four sub-quadrants. Using the same logic as detailed in Section (2), identify the Map Section by its north, east, south, and west boundaries by filling in the Section number in the blanks around the border of the Section. Locate the proper quadrant and sub-quadrant for the site and draw a dot marking the site as accurately as possible.

6) SURFACE WATER BODIES

Use a 7.5-minute U.S. Geological Survey topographic map to determine the site's approximate distance in feet or miles from the nearest stream, river, lake, or pond. For all bodies of water within 5 miles, list name of water body along with distance.

7) SCHOOLS

Similar to (6) above. List name of, and distance to, each school within 5 miles of application site. If site is on school grounds, distance will be zero.

8) COMMUNITIES

Similar to (6) and (7) above. List all communities within 5 miles of application site and give distance(s) from site in feet or miles.

9) CEMETERY WITHIN 2 MILES

Circle "Y" for yes or "N" for no to indicate presence or absence of a cemetery within 2 miles of application site. Leave blank if uncertain.

10) CHEMICAL TO BE APPLIED:

List the brand name and concentration as given on the product label. (Example: "RAID Roach & Ant Killer and Treatment."). **ATTACH A COPY OF PRODUCT LABEL AND MSDS (if applicable) TO THIS APPLICATION.**

Circle "Y" for yes or "N" for no to indicate whether or not chemical is labeled as "Restricted Use." **NOTE: All restricted chemicals must be applied only by a certified applicator (see Section 4).**

11) APPLICATION

List method of application (Examples: airplane, hand-spray, tractor, traps, etc.).

Describe any substances to be mixed with pesticides during application; explain mixing proportions.

Describe application rate (Examples: 1 gallon per acre, 1 quart per 100 sq-ft, 500 pounds per 1000 acres).

Explain frequency (how often) of proposed application. (Examples: one per month; every week; once per year)

**ATTACH MAP SHOWING OUTLINE OF APPLICATION AREA.**

livestock associations, and other agricultural producers. As part of the its information dissemination and education efforts, the NRCS will assist in coordinating implementation of the Tribe's GPMP and individual conservation plans. The Tribe's local NRCS representative is Bruce Gordon, District Conservationist (338- 3852).

## **2. Farm Services Agency**

The Food Security Act of 1985 requires that certain agricultural units participating in the USDA Farm program develop and implement a Conservation Compliance Plan. In general these agricultural units are those that plant annual crops on highly erodible land. The local office for the Natural Resource Conservation Service is responsible for developing these plans in cooperation with the USDA Farm Service Agency. In the event of the development of any conservation compliance plans on the Fort Apache Indian Reservation, NRCS will work with the Tribe, and, if necessary, develop a memorandum of agreement (MOA) between NRCS and the Tribe, to assure coordination in implementing this GPMP and any conservation compliance plans. In any case where there is a conflict between a conservation compliance plan and a Tribal ordinance, plan, or code, the Tribal law will prevail except in such instances where the compliance plan is more restrictive. Conformance with an approved conservation compliance plan does not obviate the need for compliance with any adopted Tribal code, plan, or ordinance.

## **3. Cooperative Extension System**

The University of Arizona (UofA) Cooperative Extension System is the outreach education arm of the UofA College of Agriculture. Through the Pesticide Coordinators Office, support is provided to the Arizona Department of Agriculture for the training of commercial and private pesticide applicators, including employees of the White Mountain Apache Tribe. The Cooperative Extension is involved with several efforts on the Fort Apache Indian Reservation including programs on pruning, small plot agriculture, youth empowerment, a community garden, domestic and in school violence, watershed and riparian health, environmental education, farm management efforts with the Tribal Agriculture Enterprises, cultural and other programs for youth and families. The Cooperative Extension is available to assist in an advisory and outreach education capacity. The University of Arizona Cooperative Extension is also a source of information relating to integrated pest management practices. (<http://ag.arizona.edu/extension/>).

## **4. Agricultural Research Service**

The Agricultural Research Service (ARS) conducts fundamental and applied research addressing a wide range of agriculture-related issues. This work has included the development of fate and transport models (describing the movement and chemical evolution characteristics of various pesticides) which could be useful in preventing contamination of pesticides by ground water. Should specific questions arise concerning the use of alternative plants, the use of biological controls and technical assessments of

**Appendix B**

**Application for Tribal Pesticides Use Permit**

**WHITE MOUNTAIN APACHE TRIBE**  
**Hydrology and Water Resources Program**  
P.O. Box 1000, 202 E. Walnut Dr., Whiteriver, AZ 85941  
ph: 928/338-4346 x 310; fax 928/338-5195

**Application for Pesticide Use Permit**

(NOTE: A SEPARATE APPLICATION MUST BE COMPLETED FOR EACH CHEMICAL PRODUCT TO BE APPLIED)

Application must be complete where applicable. Type or print in black or blue ink. Overstrikes or erasures must be initialed.

1) APPLICANT - mailing address

NAME \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_  
TELEPHONE NO. \_\_\_\_\_

2) LOCATION OF PROPOSED APPLICATION

COUNTY \_\_\_\_\_  
\_\_\_\_\_ 1/4 of the \_\_\_\_\_ 1/4, Sec. \_\_\_\_\_  
Township \_\_\_\_\_ Range \_\_\_\_\_  
(N.S) (E.W)

Land Assigned to: \_\_\_\_\_  
General Description of Site (farm, school yard, etc.):  
\_\_\_\_\_  
\_\_\_\_\_

3) PURPOSE OF APPLICATION (rodents, weeds, etc.; List type of crop if farm application)

\_\_\_\_\_  
\_\_\_\_\_

Is crop for human consumption?    Y    N

4) APPLICATOR

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
Tel. \_\_\_\_\_ Fax \_\_\_\_\_

Certification Agency and License Number:  
\_\_\_\_\_  
\_\_\_\_\_

FOR WMAT HYDROLOGY & WATER RESOURCES OFFICE USE ONLY: DO NOT WRITE IN AREA BELOW

CONDITIONS OF APPROVAL

Use of this pesticide/herbicide must comply with all Federal and Tribal standards. An certified applicator must apply all "restricted-use" chemicals. Attach copy of license and insurance if applicable.

APPLICATION APPROVED    Y    N

PERMIT NUMBER \_\_\_\_\_

DATE ISSUED \_\_\_\_\_

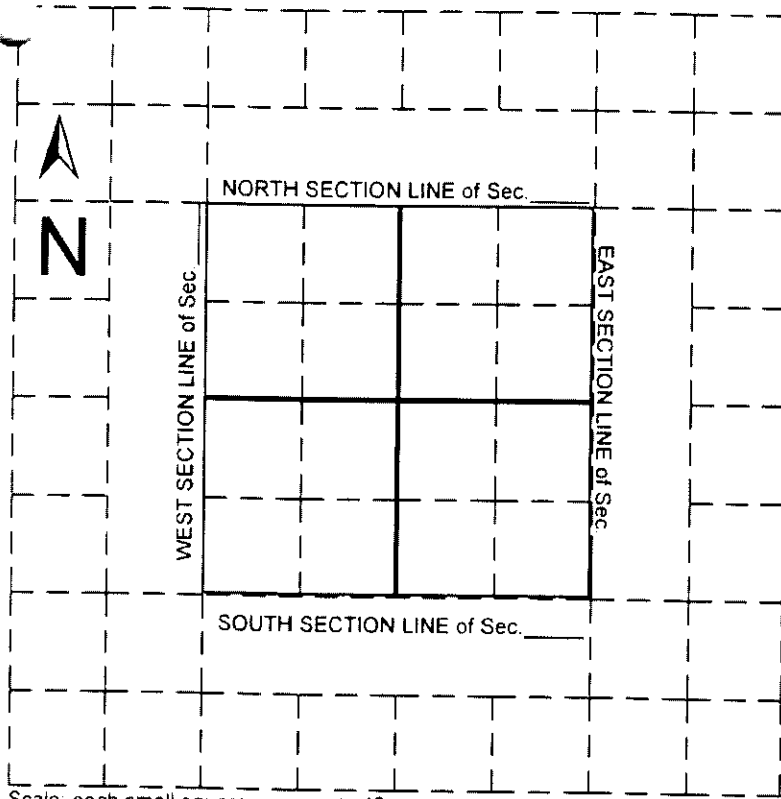
BY:

\_\_\_\_\_  
(print name and title)

\_\_\_\_\_  
(signature)

5) MAPPED LOCATION OF PROPOSED APPLICATION

Use the CENTER section (1 section, 640 acres) for the site location.



Scale: each small square represents 40 acres.

FOR WMAT HYDROLOGY & WATER RESOURCES OFFICE USE ONLY:  
DO NOT WRITE IN AREA BELOW

BASIN \_\_\_\_\_

SUBWATERSHED \_\_\_\_\_

Elevation of Land Surface at Site: \_\_\_\_\_ ft.

Surface Geology: \_\_\_\_\_

Underlying Aquifer Unit(s)	Depth(ft)	Thickness (ft)
_____	_____	_____
_____	_____	_____
_____	_____	_____

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

WELLS: Name and location of all within 5 mile radius.

\_\_\_\_\_

\_\_\_\_\_

Tribal Plan & Project Review Approved? Y N

by \_\_\_\_\_ (name) \_\_\_\_\_ (date)

Biologist: \_\_\_\_\_

6) SURFACE WATER BODIES: Name and Distance of all within 5 mile radius.

\_\_\_\_\_  
\_\_\_\_\_

7) SCHOOLS: Name and Distance of all within 5 mile radius.

\_\_\_\_\_  
\_\_\_\_\_

8) COMMUNITIES: Name and Distance of all within 5 mile radius.

\_\_\_\_\_  
\_\_\_\_\_

9) CEMETERY WITHIN 2 MILES? Y N

10) CHEMICAL TO BE APPLIED:

NAME AND BRAND:

\_\_\_\_\_  
\_\_\_\_\_

RESTRICTED USE? Y N

\*\*\* ATTACH COPY OF LABEL AND MSDS \*\*\*

11) APPLICATION

METHOD (aerial, hand-spray, traps, etc.): \_\_\_\_\_

MIXING AGENTS (describe substance and method): \_\_\_\_\_

RATE (amount per sq-ft, acre, etc.): \_\_\_\_\_

FREQUENCY (no. times/mo or year): \_\_\_\_\_

\*\*\* ATTACH MAP OF APPLICATION AREA \*\*\*

**Instructions for Completing Pesticides/Herbicides Permit Application Form**

Please fill in all blanks in the application except those specifically designated as "For WMAT Hydrology & Water Resources Program Use Only" or those areas noted as optional in the instructions below. For assistance with completing this form, call 338-4346 x 310.

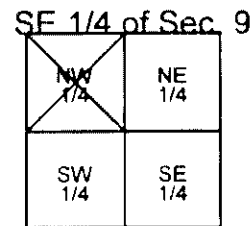
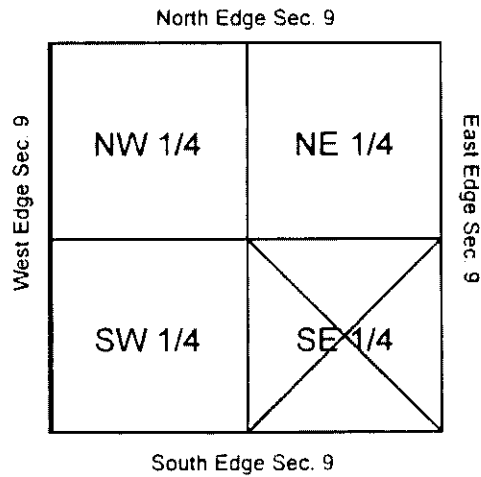
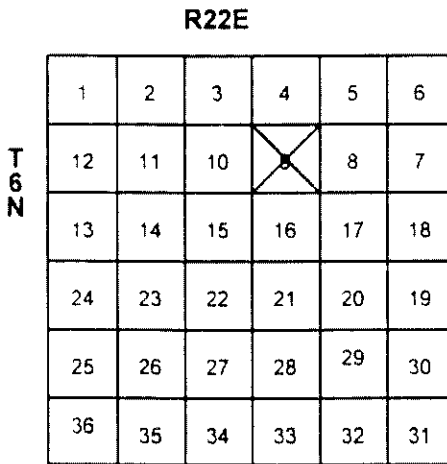
1) Applicant

Applicant is person applying for pesticides permit. If applicant is an organization, note organization name and address and give a contact name and phone number.

2) Location of Proposed Application

Geographical location of site described by county and Township/Range system. U.S. Geological Survey/Bureau of Indian Affairs topographic maps for the Reservation show Townships (north-south divisions) and Ranges (east-west divisions). A Township/Range block on the Fort Apache Indian Reservation is expressed as T\_\_ N (north), R\_\_ E (east), where the blanks indicate a specific Township number and a specific Range number.

Each Township/Range block is subdivided into 36 Sections. Each Section is 1 square mile. Divide the appropriate Section (Sections are numbered on topo maps) into quarters, then select the quarter where the site is located. Now divide this quarter into four more quarters, and specify which of those quarters contain the site. For the example shown below, the blanks in section 2 of the Pesticides/Herbicides Permit Application Form would be completed by writing "NW 1/4 of the SE 1/4 of Section 9, Township 6 N, Range 22 E."



3) Purpose of Application

Describe the reason for applying the pesticide/herbicide (eg, rodents, roaches, ants, weeds, etc.). If applying to a crop, specify the type of crop and indicate whether or not it is intended for human consumption by circling "Y" for yes or "N" for no.

APPLICATOR

Give the name and contact information for the person who will be applying the chemical. Give the applicator's Arizona, EPA, or Tribal Pesticides Applicator Certification number, if one exists. All applicators must be certified by the U.S. EPA, the State of Arizona, or the White Mountain Apache Tribe.

5) Mapped Location of Proposed Application Site

Similar to Section (2) above, this area provides more detailed information on the proposed application site's location. The center blocks represent one Section divided into four quadrants, with each quadrant divided into four sub-quadrants. Using the same logic as detailed in Section (2), identify the Map Section by its north, east, south, and west boundaries by filling in the Section number in the blanks around the border of the Section. Locate the proper quadrant and sub-quadrant for the site and draw a dot marking the site as accurately as possible.

6) SURFACE WATER BODIES

Use a 7.5- minute U.S. Geological Survey topographic map to determine the site's approximate distance in feet or miles from the nearest stream, river, lake, or pond. For all bodies of water within 5 miles, list name of water body along with distance.

7) SCHOOLS

Similar to (6) above. List name of, and distance to, each school within 5 miles of application site. If site is on school grounds, distance will be zero.

8) COMMUNITIES

Similar to (6) and (7) above. List all communities within 5 miles of application site and give distance(s) from site in feet or miles.

9) CEMETERY WITHIN 2 MILES

Circle "Y" for yes or "N" for no to indicate presence or absence of a cemetery within 2 miles of application site. Leave blank if uncertain.

10) CHEMICAL TO BE APPLIED:

List the brand name and concentration as given on the product label. (Example: "RAID Roach & Ant Killer and Treatment."). **ATTACH A COPY OF PRODUCT LABEL AND MSDS (if applicable) TO THIS APPLICATION.**

Circle "Y" for yes or "N" for no to indicate whether or not chemical is labeled as "Restricted Use." **NOTE: All restricted chemicals must be applied only by a certified applicator (see Section 4).**

11) APPLICATION

List method of application (Examples: airplane, hand-spray, tractor, traps, etc.).

Describe any substances to be mixed with pesticides during application; explain mixing proportions.

Describe application rate (Examples: 1 gallon per acre, 1 quart per 100 sq-ft, 500 pounds per 1000 acres).

Explain frequency (how often) of proposed application. (Examples: one per month; every week; once per year)

**ATTACH MAP SHOWING OUTLINE OF APPLICATION AREA.**



## Appendix C

### Technical Assistance Resources

#### U.S. Public Health Service - Indian Health Service

The mission statement of the Indian Health Service's Office of Environmental Health and Engineering (IHS-OEHE) includes the following language:

*"providing technical and financial assistance to Indian tribes and Alaska Native communities (tribes) to promote a healthy environment through the cooperative development and continuing operation of safe water, wastewater, and solid waste systems and related support facilities; and assisting each American Indian tribe and Alaska Native community to achieve its unique goals for obtaining health care facilities and establishing and maintaining a healthy environment."*

-- (IHS-OEHE web site, <http://www.ihs.gov>, Sept. 2001)

In keeping with its mission, the local Whiteriver Office (and regional office in Pinetop) of the IHS-OEHE is responsible for assisting in the development and maintenance of safe drinking water supplies on the Reservation. Specific questions regarding human health risks associated with toxic chemicals may be addressed to the Sanitarians at the Whiteriver IHS-OEHE office (338-3655 and 3660).

#### U.S. Department of Agriculture (USDA)

##### 1. Natural Resources Conservation Service - White Mountain Apache Natural Resource Conservation District

The primary responsibility of the Natural Resources Conservation Service (NRCS) is to develop and implement a National Soil and Water Conservation Program through a cooperation with landowners and operators. As part of this effort, the NRCS provides technical assistance to individuals, other USDA entities, and to Natural Resource Conservation Districts for the development of management practices. The NRCS has standards and specifications for conservation practices, some of which may involve the application of pesticides. The NRCS assists landowners with voluntary planning and application of sound conservation practices, and has information available which the Tribe can use to protect groundwater from pesticide contamination.

The Tribe maintains the White Mountain Apache Natural Resource Conservation Office at the Tribal Land Operations building in Whiteriver. The Natural Resources Conservation Service (NRCS) staffs this office with a District Conservationist. The district conservationist provides technical assistance for natural resource conservation to the Tribe, the White Mountain Apache Natural Resource Conservation District, Tribal

livestock associations, and other agricultural producers. As part of the its information dissemination and education efforts, the NRCS will assist in coordinating implementation of the Tribe's GPMP and individual conservation plans. The Tribe's local NRCS representative is Bruce Gordon, District Conservationist (338- 3852).

## **2. Farm Services Agency**

The Food Security Act of 1985 requires that certain agricultural units participating in the USDA Farm program develop and implement a Conservation Compliance Plan. In general these agricultural units are those that plant annual crops on highly erodible land. The local office for the Natural Resource Conservation Service is responsible for developing these plans in cooperation with the USDA Farm Service Agency. In the event of the development of any conservation compliance plans on the Fort Apache Indian Reservation, NRCS will work with the Tribe, and, if necessary, develop a memorandum of agreement (MOA) between NRCS and the Tribe, to assure coordination in implementing this GPMP and any conservation compliance plans. In any case where there is a conflict between a conservation compliance plan and a Tribal ordinance, plan, or code, the Tribal law will prevail except in such instances where the compliance plan is more restrictive. Conformance with an approved conservation compliance plan does not obviate the need for compliance with any adopted Tribal code, plan, or ordinance.

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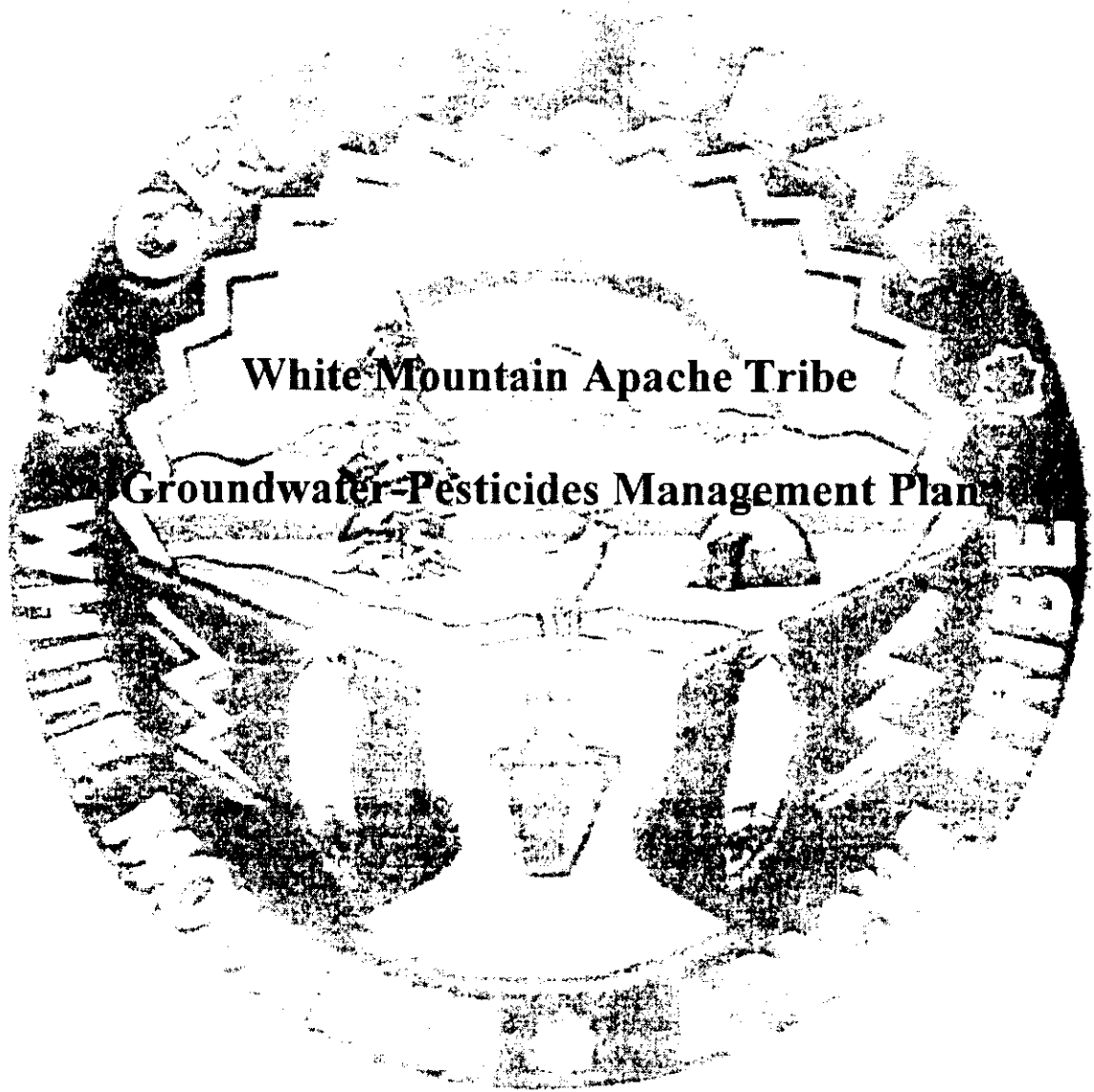
conservation practices, the ARS is a source of technical support and information. (<http://www.ars.usda.gov/>).

☐ **Arizona Department of Agriculture**

The Arizona Department of Agriculture (AzDA) is responsible for implementing the pesticide enforcement program in the State of Arizona. The AzDA jurisdiction does not extend to Tribal lands. However, the AzDA maintains agricultural statistics which are useful in planning preventative measures. The State's Pesticide Hotline (800-423-8876) serves as a venue for reporting illegal pesticide applications within the State of Arizona, but outside of the Reservation boundaries. (<http://agriculture.state.az.us/>).

☐ **U. S. Fish and Wildlife Service**

The Fish and Wildlife Service (USFWS or Service) administers the federal Endangered Species Act. Pursuant to the Service's Statement of Relationship with the Tribe, the Service provides technical and other assistance in protecting sensitive species and the ecosystems upon which they depend. The Service also consults with federal agencies whenever their actions may affect federally listed species. The Tribal Sensitive Species Coordinator, in cooperation with the USFWS, as appropriate, will assure that all approved pesticide applications on the Reservation conform to the requirements of any management plan for sensitive species found on the Reservation and will not adversely affect such species. The Tribe conducts contaminant testing in cooperation with USFWS and specific labs. The results of any pesticides detected during these tests will be documented in the Tribe's pesticides database through coordination with the Tribal Hydrologist or his/her designee.



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**White Mountain Apache Tribe  
Groundwater-Pesticides Management Plan**

**\*\*\* Provisional - Subject to Revision \*\*\***

**I. Tribe's Policy and Goals Regarding the Protection of Groundwater**

**A. Policy**

It is the policy of the White Mountain Apache Tribe (the Tribe) that the use, storage, and disposal of pesticides, herbicides, and other toxic compounds shall be managed to protect human health and the environment and to preserve the natural condition of surface and ground-water resources within the Fort Apache Indian Reservation (Reservation). The Tribe emphasizes prevention of contamination over remediation, which is consistent with the federal goals of preventing unreasonable adverse effects to human health and the environment and protecting the environmental integrity of the nation's ground water. The Tribe's *Water Quality Protection Ordinance* dictates water quality standards that apply to Reservation surface waters and groundwaters, and will be used in conjunction with this Groundwater-Pesticides Management Plan (GPMP) to ensure protection of human health and ecosystems dependent on water resources.

**B. Goals**

The water quality objective of the Tribe's GPMP is the maintenance of pristine ground-water quality in order to protect drinking water resources for present and future generations of White Mountain Apaches. Because different areas of the Reservation, due to natural conditions, may be more susceptible to degradation or contain resources considered critical to the Tribe, some areas may warrant additional protections above those required for the entire Reservation. The Tribe places priority on protecting currently used or expected future sources of drinking water (defined as having a total dissolved solids concentration of less than 10,000 parts per million), groundwater that is closely hydrologically connected to surface water, culturally significant springs, and surface water resources. The Tribe will consider aquifer vulnerability; geologic conditions; proximity to surface or shallow groundwaters; fish, wildlife, plants or aquatic species considered critical to the Tribe; and sacred or spiritually important areas in selecting special groundwater protection measures.

When a pesticide release either directly impacts groundwater or aquatic species or threatens to pollute or damage a groundwater resource, it is the Tribe's policy to seek quick response and immediate restoration to the extent possible (see Section IV.D "Emergency Response"). Each response will be based upon an assessment of the threat posed, including whether human health or the environment is at risk, and public concerns raised by those affected by the presence of the pesticide. In all cases, the detection of a pesticide in surface water,

groundwater, or in fish tissue will be a cause for concern. The Tribe may take a number of immediate and long-term response actions, including both the temporary and permanent suspension of use of that pesticide on the Reservation.

Additional objectives of the Tribe's groundwater protection strategy include:

- Working cooperatively with federal agencies to assure the United States fulfills its trust responsibilities to the Tribe by protecting, maintaining, and restoring the natural condition of all surface waters and groundwaters within the exterior boundaries of the Reservation.
- Establishing well-head protection areas, source-water protection zones, and measures to protect all areas vulnerable to pesticide contamination on the Fort Apache Indian Reservation.
- Banning the use of pesticides known to leach and contaminate groundwater unless no other less toxic alternative exists and a determination is made that the economic benefits, both short- and long-term, to the Tribe outweigh a restriction on its use.

## **II. Jurisdiction and Authority**

The Tribe's authority to implement the guidance set forth in this plan and take enforcement actions to support the protection of human health and the environment from contamination by pesticides, herbicides, and other toxic chemicals, is based on the constitution of the White Mountain Apache Tribe; on the Tribe's inherent and aboriginal sovereign authority which includes, but is not limited to, the authority to regulate conduct that threatens or has some direct effect on the Tribe's political integrity, economic security, or health or welfare of the Tribe; on authority delegated to the Tribe under federal law; on the Tribe's authority to regulate the conduct of its members and activities within its lands, and on Tribal Resolution \_\_\_\_\_. This authority extends to all conduct of members and non-members anywhere within the exterior boundaries of the Reservation, notwithstanding the issuance of any patent, that violates any provision of this plan.

The *Tribal Environmental Code* provides for Tribal regulation of hazardous chemicals, including pesticides. The Tribal Legal Department is currently revising the Environmental Code to provide legal enforcement of permit violations, including failure to obtain a permit when one is required, and is the basis for exacting penalties against parties who fail to comply with this plan.

## **III. Definitions**

"Pesticide" - any product used for the elimination of pests (eg, rodents, insects, worms), including herbicides (chemicals used for eliminating plants), biotics, and disinfectants.



These products include organic compounds as well as inorganics (eg, copper sulfate, chlorine).

“Toxic substances” - pesticides, herbicides, heavy metals, and organic chemicals present at levels above those identified in 40 C.F.R. § 131.36 as toxic to human, animal, plant, or aquatic life, or to interfere with the normal propagation, growth, and survival of the aquatic biota, including fish.

“Pristine” - natural quality with no human-induced impacts. References to pristine groundwater on the Fort Apache Indian Reservation apply only to those waters whose natural chemical properties make them suitable for human consumption.

“Registered pesticide” - any pesticide registered with the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and having a label describing appropriate use and handling of the substance.

“Restricted-use pesticide” - any pesticide controlled by U.S. EPA under FIFRA §3 (d)(1)(C) and specifically requiring a *licensed applicator* as indicated on the product label.

“Licensed applicator” - a person who has undergone training, and received official state, Tribal, or U.S. EPA certification for restricted-use pesticides. For the purpose of this plan, the certification must be issued by the State of Arizona, U.S. EPA Region IX, or the White Mountain Apache Tribe.

“Reservation” - the Fort Apache Indian Reservation.

“Member” - a member of the White Mountain Apache Tribe.

“Non-member” - an individual who is not a member of the White Mountain Apache Tribe.

#### **IV. Roles and Responsibilities of Tribal Agencies**

##### **A. Pesticide Use Permitting and Tracking**

Pursuant to White Mountain Apache Tribal Council Resolution \_\_\_\_\_ (Appendix A) and this plan, all users of pesticides, including federal, tribal, and other agencies, must obtain prior approval in the form of a Tribal Pesticides Use Permit for any application of chemicals on the Fort Apache Indian Reservation meeting one or more of the criteria set forth in Section IV.A.1. below. The goals of the permitting process are:

- i. to protect human health and safety;

- ii. to prevent inappropriate use of pesticides on the Reservation;
- iii. to prevent any pesticides from inadvertently leaving the site of application through surface runoff, infiltration, wind dispersal, or by other means; and
- iv. to protect cultural values, including native flora and fauna as well as commercial fisheries and livestock.

The Tribal Hydrology and Water Resources Program, in conjunction with the Tribal Environmental Planning Office, is responsible for tracking pesticide use on the Reservation.

#### 1. Conditions Requiring Permit

**Each prospective pesticide user must submit an “Application for Tribal Pesticides Use Permit” (Appendix B) to the Hydrology and Water Resources Program prior to any pesticide<sup>1</sup> use on Tribal lands that meets one or more of the following criteria:**

- area coverage equal to, or exceeding, one (1) acre; or
- volume of chemical to be *applied, stored, or disposed* equal to, or exceeding five (5) gallons; or
- any application by a non-Tribal agency or other entity, regardless of area or volume; or
- use, storage, or disposal of a restricted-use pesticide

A permit must be obtained for each chemical applied and for each application event. Each application for a pesticides use permit must be accompanied by a copy of the product label and Materials Safety Data Sheet (MSDS) to ensure accurate documentation of substances, proper application purpose, and appropriate application method. All “restricted-use” pesticides (as categorized by the U.S. EPA) will also require documented proof of a certified applicator. No chemicals banned by the State of Arizona or by the U.S. EPA shall be applied on Tribal lands. The Tribe may, in the future, add to the list of chemicals banned from use on the Reservation.

#### 2. Permit Fee and Bond

A processing fee of fifty dollars (\$50) will be assessed by the Tribal Hydrology and Water Resources Program to cover basic costs of administering the permit system. Additional fees may be assessed for monitoring (sampling and analysis)

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<sup>1</sup>Note definition of “pesticides” provided in Section III of this document.

associated with large-scale applications or those involving restricted-use pesticides (see next section). In these cases, the permit will be conditional on the development of a monitoring plan and up-front payment of sample analysis costs to the Tribal Hydrology and Water Resources Program. The Tribal Hydrologist will work with the applicant to develop an appropriate and acceptable monitoring plan.

At the discretion of the Tribal Hydrologist and Tribal Plan and Project Review panel, and in consultation with the Tribal Legal Department and others, permits for extensive pesticide applications will require a bond to be posted by the permittee. The purpose of the bond is to cover anticipated costs of mitigation in the event of an unpermitted release to the environment.

### 3. Site-specific Management Plans

Any application of restricted-use pesticides on the Fort Apache Indian Reservation will require development of a site-specific pesticide management plan. This plan shall address special issues of concern specific to the site and to the pesticide being used. In addition to the standard information required for the pesticides permit, the site-specific management plan must address, at a minimum, the following items:

- the use of Best Management Practices (BMPs) to protect human health and natural resources;
- the precise timing of planned application (duration, time of month, year);
- special measures to protect cultural resources within affected area;
- special measures to mitigate water- and air-borne transport of pesticides out of area of application (including infiltration to groundwater);
- a sampling plan to monitor the effectiveness of mitigation measures and BMPs (may include groundwater, surface water, soil, air, or other media), including sampling sites, number of samples, analytes, frequency and duration of sampling, and quality assurance protocols.
- a progress report to define the actions taken during the application process.

Any application of restricted-use pesticides will require approval by the Tribal Plan and Project Review panel. The panel, which includes the Tribe's Sensitive Species Coordinator, will determine whether or not a biological assessment is required for permit approval. Any large-scale application of other chemicals, such as fertilizers, must also undergo review by the Tribal Plan and Project Review panel, and may require a site-specific management plan.

Upon approval of the pesticides permit application<sup>2</sup>, the Tribal Hydrologist (or his/her designee) will issue a Pesticides Use Permit to the applicant. The permit allows only the designated uses<sup>3</sup> specifically stated on the permit. No substitutions of any kind (including applicator) may be made to the permitted use without written consent from the Tribal Hydrologist or his/her designee.

B. Working Group

A Tribal Groundwater-Pesticides Management Plan Working Group was formed to develop and implement this plan to protect the groundwater resources on the Fort Apache Indian Reservation. The working group consists of representatives from eight Tribal programs (Hydrology and Water Resources Program, Environmental Planning Office, Tribal Emergency Response Commission, Tribal Farm, Wildlife and Outdoor Recreation, Tribal Forestry, Cultural Preservation, and Community Services) and the BIA-Fort Apache Agency Environmental Quality Services Officer. Each member of the working group assists through the provision of technical expertise, resource data, coordination, and/or monitoring assistance.

C. Environmental Compliance

All pesticides are considered toxic chemicals. As such, their use, storage, and disposal on the Fort Apache Indian Reservation is regulated under the Tribal Environment Code and Tribal Water Quality Ordinance, and other applicable Tribal laws and regulations (refer to Section II of this document).

In the event of a permit violation (including failure to obtain a permit when required), the Tribal Environmental Planning Program Manager is responsible for issuing a "Warning of Violation" or "Notice of Violation" to the person/entity responsible for the violation. The Warning of Violation will specify the terms under which the minor problem may be rectified without penalty. The Notice of Violation will be issued in the event of a severe violation and will specify the terms of remediation and serve as notification that the matter is being turned over to the Tribal Legal Department for prosecution.

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<sup>2</sup>The Tribal Hydrologist will forward any applications for pesticides use exceeding **10 gallons** or covering more than **5 acres**, or for **any restricted-use** pesticide, to the Tribal Plan and Project Review panel for review and approval.

<sup>3</sup>The term "uses" includes the purpose, chemical, site, method, and frequency of pesticide application, storage, and/or disposal.

#### D. Emergency Response

Pesticides are toxic chemicals, and any accidental and/or unpermitted release to the environment or human exposure should be treated as an emergency by calling 911 to report the event. The use, storage, and disposal of toxic chemicals, including pesticides, are regulated under Chapter One ("Establishment of a Tribal Hazardous Substances Emergency Plan") of the Tribe's Environmental Code. This code authorizes the establishment of the Tribal Emergency Response Commission (TERC). Under the Environmental Code, the TERC has developed procedures and implementation programs for chemical emergency planning and preparedness, including standard operating procedures for hazardous materials management and emergency response within the external boundaries of the Fort Apache Indian Reservation. As the Chairman of the Tribal Emergency Response Commission, the Chief of the White Mountain Apache Tribal Fire and Rescue Department in Whiteriver serves as the initial point of contact for the TERC and is responsible for coordinating the Tribe's emergency response to reports of hazardous material or chemical releases that threaten human health or the environment. In addition to the Fire Department Chief, TERC is comprised of the director, manager, or chief, or their respective designees, of the Tribal Police Department, Tribal Emergency Medical Services, Tribal Safety Department, Tribal Planning Department (or other named Tribal department with primary responsibility for environmental protection and natural resources on the Reservation), Tribal Legal Department, and the Tribal Health Authority.

In addition to reporting the release to emergency response personnel, all unauthorized pesticides releases to the environment should be immediately reported to the Tribal Hydrologist at 928-338-4346 x 310.

#### E. Biological Resources Guidance

The GPMP will help assure that biological resources will not be adversely affected through the contamination of groundwater or surface waters by pesticides. The Tribal Wildlife and Outdoor Recreation Division's Sensitive Species Coordinator, Chief Biologist, and/or Fisheries Biologists (338-4385) will provide information, as necessary, on special protection measures required to protect threatened, endangered, and other species that have the potential to be affected by any pesticide application. Concurrence (indicated by signature) by at least one of these representatives is required for approval of any pesticides permit on the Fort Apache Indian Reservation.

## **V. Related Law and Policy of the White Mountain Apache Tribe**

### **A. Tribal Environmental Code**

Chapter One of the Environmental Code of the White Mountain Apache Tribe establishes a program for management of hazardous chemicals on the Reservation. It establishes a Tribal Emergency Response Commission and a Local Emergency Planning Committee. It also sets forth facility notification requirements necessary for the development and implementation of a Tribal Emergency Response Plan. This plan is currently under development, but a draft version of the plan spells out critical chain-of-command emergency response procedures and serves as the working plan at this time. Chapter One of the Environmental Code also contains reporting requirements which provide the Tribal community with important information on the nature, location, and quantity of hazardous chemicals in their community.

As described in Section IV.D. of this document (Emergency Response), the Tribal Emergency Response Commission (TERC) is responsible for initial response to reported chemical releases to the environment or other incidents involving human exposure to toxic chemicals.

Section 1.9 of Chapter One of the Environmental Code outlines conditions under which a facility on the Fort Apache Indian Reservation is subject to emergency planning requirements. The Tribal regulations for quantities of "extremely hazardous substances" (which include some pesticides) that can be stored within any facility or used by any entity on the Reservation are based on "threshold planning quantities" listed in § 302 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (P.L. 99-499) currently found at 40 CFR § 355, Appendix A and B. These Federal Register documents can currently be found on the Internet at [http://www.access.gpo.gov/nara/cfr/waisidx\\_00/40cfr355\\_00.html](http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr355_00.html).

### **B. Tribal Water Quality Protection Ordinance**

The White Mountain Apache Tribe has inherent sovereign authority to regulate water quality on the Reservation. It also has primacy to implement the federal water quality program under the Clean Water Act. The Tribe monitors water quality to meet the requirements of the Tribal Water Quality Protection Ordinance and the federal Clean Water Act. The purposes of the Water Quality Protection Ordinance are as follows:

1. To promote the health of Tribal waters and the people, plants, and wildlife that depend on them through holistic management and sustainable use;
2. To designate the existing and attainable uses for which the surface water of the White Mountain Apache Tribe shall be protected;
3. To prescribe water quality standards to sustain the designated uses; and

4. To assure that degradation of existing water quality does not occur.

Section II. A. of the Tribal Water Quality Protection Ordinance provides that the Tribe's anti-degradation policy is to maintain "existing instream water uses and the level of water quality necessary to protect the existing uses." This policy includes the requirement to protect waters from chemical contamination resulting from application of pesticides and fertilizers.

Section III.A.2. of the Water Quality Protection Ordinance charges the Tribal Environmental Planning Office, with assistance from other Tribal programs and outside agencies as requested by the Tribe, with implementing the Tribal Water Quality Protection Ordinance.

### C. Source Water and Well-head Protection Zones

The White Mountain Apache Tribe's Hydrology and Water Resources Program is presently working, under a grant from the U.S. EPA Office of Drinking Water, to delineate source water protection areas based on existing information on active drinking water wells, monitoring wells, and hydrogeology. The Tribe anticipates formal designation of specific "source water protection zones" which will afford those zones heightened protection against activities which might lead to degradation of drinking water resources.

Source water protection zones will include well-head protection areas as well as critical recharge areas, which may be distant from the wells affected by such recharge. The Tribal Hydrology and Water Resources Program currently implements a permitting system for all new wells on the Reservation. The Tribal Hydrology and Water Resources Program also maintains a groundwater database describing basic features of known wells. Water quality data associated with pesticides monitoring will be included in this database.

## VI. Tribal Coordination

### A. U. S. Environmental Protection Agency

Protecting groundwater is one of the fundamental responsibilities of the United States Environmental Protection Agency (U.S. EPA). This responsibility is executed through federal environmental laws which include the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Clean Water Act, the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). It is U.S. EPA's responsibility to determine the federal regulatory approach, issue guidance and regulations, and provide technical and financial support for achieving its objectives. The U.S. EPA maintains a number of data bases, conducts technical studies on pesticides, and determines whether to restrict the use of any pesticides due to concerns regarding leaching into groundwater. The U.S. EPA has a government-to-government relationship with the

Tribe and a trust responsibility to assist the Tribe in protection of the Reservation environment. The agency is directly responsible for providing technical assistance in the development of this Tribal Groundwater-Pesticides Management Plan.

1. Federal Insecticide, Fungicide and Rodenticide Act

The U.S. EPA administers the regulation of pesticides and provides the authority for the Tribe to regulate pesticides on the Reservation. Until the Tribe assumes primacy in pesticides regulation, the U.S. EPA will identify pesticides that require either a generic or a specific groundwater protection plan as a prerequisite for their use. For these pesticides, the Tribal Hydrology and Water Resources Program, in conjunction with the GPMP Working Group, and in consultation with the Tribal Watershed and Environmental Planning Programs, will decide whether or not to develop a pesticide-specific management plan. In any case where the Tribe chooses not to develop the required plan, the use of that pesticide is banned on the Reservation.

2. Clean Water Act

The Clean Water Act establishes the national goal to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The U.S. E.P.A. is responsible for promulgating, publishing, and updating ambient water quality criteria. These criteria provide guidance on environmental effects of pollutants in Section 304 of the Act. They provide the basis for the development of Tribal standards. Similarly, the U.S. EPA is responsible for developing health-based maximum contaminant levels.

The Clean Water Act establishes a point-source permit program under Section 402 and non-point control programs under Section 319. The Tribal Environmental Planning Program Manager is responsible for coordinating these permits on the Reservation with U.S. EPA.

3. Safe Drinking Water Act

The Safe Drinking Water Act establishes the authority for the designation of federally recognized sole-source aquifers and well-head protection areas. As part of its source water protection efforts, the Tribe has proposed its own well-head protection and source water protection areas. The Tribal Utility Authority, with assistance from the Tribal Environmental Planning Office, produces and distributes to the public an annual "Consumer Confidence Report" informing them of the condition of their drinking water.



B. Other Federal Environmental Laws

Underground storage tanks and the treatment, storage, and disposal of hazardous wastes are regulated under authorities in the Resource Conservation and Recovery Act. Any unauthorized pesticide releases or spills could be addressed through the use of emergency authorities in the Comprehensive Environmental Response, Compensation and Liability Act as amended by the Superfund Amendments and Reauthorization Act of 1986 as well as in Chapter One of the White Mountain Apache Tribe Environmental Code.

C. Bureau of Indian Affairs

The Bureau of Indian Affairs (BIA) is the primary trustee agency of the United States government for the Tribe. As such, the BIA is charged to facilitate, with maximum involvement of Indians and Alaska Native people, the full development of Tribal natural resource potential. Protecting Tribal property is the most clearly defined and important aspect of the federal government's trust responsibility. To that end, the BIA has been invited to be involved in the development of this GPMP and will be responsible for ensuring that BIA policies and practices are consistent with this plan.

D. Other Agencies

Numerous other federal agencies listed in Appendix D may provide technical and other assistance in implementing this plan.

**VII. Resources**

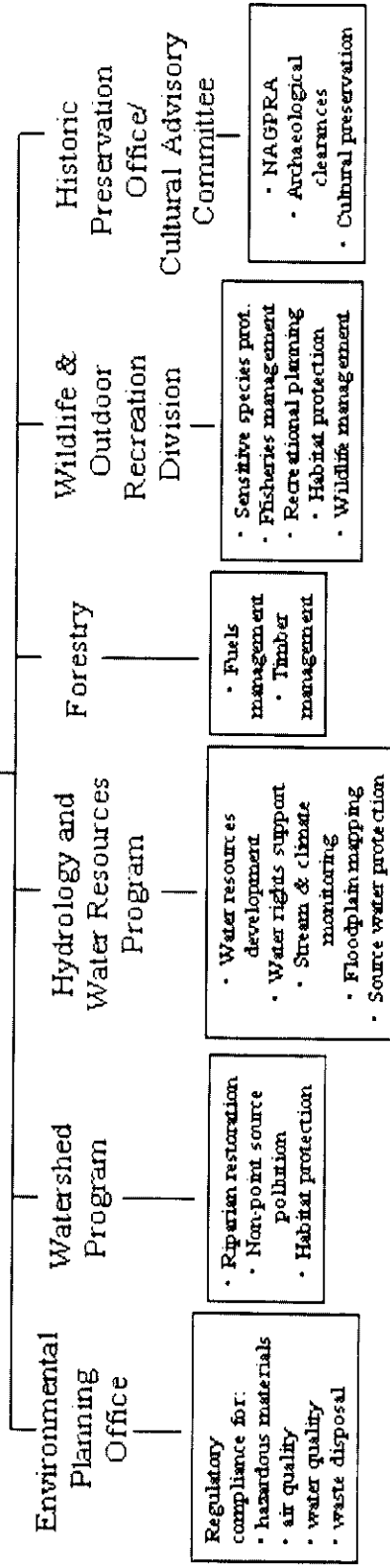
The White Mountain Apache Tribe has a well developed programmatic infrastructure for natural resources and environmental management. The diagram below describes the organizational structure and responsibilities of Tribal programs involved in natural resources management. Other relevant Tribal programs not shown in the diagram below include the Tribal Fire and Rescue and Tribal Police departments and the Emergency Medical Technician (EMT) program. A Tribal Geographic Information System contains important land-use coverage data, and will provide a mechanism for pesticide use planning and tracking on the Reservation. Specific Tribal program responsibilities for implementation of this plan are described in Section IV of this GPMP. Other case-specific guidance will be provided, as needed, by the programs shown in the diagram below.

Implementation of this plan depends, in part, on the regular responsibilities of Tribal staff funded through existing BIA P.L. 93-638 program grants (Hydrologic Evaluation and Design; EMT and law enforcement; Sensitive Species Coordinator, and others), as well as General

Assistance Program Grant funding from U.S. EPA. Administrative funds for the GPMP implementation will also derive from fees collected as part of the permitting process (see Section IV.A) set forth in this plan. As implementation of the plan proceeds, additional funds and technical assistance may be sought from U.S. EPA, BIA, and/or other agencies.

## Relevant Tribal Program Structure and Responsibilities

### Tribal Council



## **VIII. Basis for Assessment and Planning**

### **A. Approach Overview**

Protection of human health and water resources for present and future generations of White Mountain Apaches is the central objective of this GPMP. At present, the vast majority of Fort Apache Indian Reservation residents depend on groundwater for their drinking water supplies. In addition to drinking water, surface water and springs dependent on groundwater are exceptionally important cultural values for the White Mountain Apache Tribe. Recreational and ceremonial use of lakes, streams, and springs by Tribal members and preservation of natural ecosystems are inseparable and equally important objectives for the Tribe.

Protection of groundwater in close hydrologic contact with surface water, and those currently used, or anticipated for future use, as drinking water supplies are the top priorities for protection under this plan. Included in this high priority group are springs with special cultural significance, especially those used for ceremonial and/or drinking water purposes. Because remediation of contaminated groundwater is generally impractical, the overriding goal of this GPMP is to prevent contamination by pesticides of any and all water resources on the Reservation.

### **B. Source Water Assessment and Protection**

The Tribe's Source Water Assessment and Protection program (implemented by the Tribal Hydrology and Water Resources Program with funding from U.S. EPA) is presently delineating source water contributing zones for municipal and domestic drinking water supplies on the Reservation. These zones, once approved and adopted by the Tribal Council, will serve as a basis for prioritizing groundwater protection from pesticides and other hazardous materials. Other high-priority protection areas will be defined on the basis of known and probable aquifer recharge areas and areas of anticipated future development.

### **C. Pesticides Use Inventory**

As part of the planning process for developing this GPMP, the Tribal Hydrology and Water Resources Program conducted an inventory of all pesticide use and storage by Tribal, federal, and state agencies on the Reservation. The results of this inventory are contained in a binder in the Tribal Hydrologist's office. The general findings of the inventory can be summarized as follows:

- Pesticide use on the Fort Apache Indian Reservation is generally low.
- Schools, Tribal, BIA, and IHS facilities receive regular pesticides treatments by local pest management companies.

- U.S. Fish & Wildlife Service (USFWS) utilizes pesticides in the operation and maintenance of two National fish hatcheries on the Fort Apache Indian Reservation. The USFWS has a certified applicator for these purposes and coordinates directly with the Tribe's Sensitive Species Coordinator before every application.
- The Bureau of Indian Affairs uses some pesticides as part of the Forestry greenhouse operation and for other forestry and woodland treatments. A certified applicator manages the BIA greenhouse and is responsible for overseeing all chemical applications at that facility. Other broader applications to Tribal lands by BIA Forestry and Fire Management agencies are approved by the Tribal Council on a case-by-case basis.
- No records or memories of pesticide use at the Tribal Farm could be identified.
- Future plans for increased agricultural production at the Tribal Farm may include the use of pesticides.
- Chlorine used and stored at the Miner Flat well field laboratory operated by the Tribal Utility Authority, and at the Whiteriver and Sunrise Resort Hotel swimming pools constitute significant pesticide volumes.
- Pesticide use by livestock associations on the Reservation is minimal with the exception of some chemicals for grasshopper and rodent eradication at the ID Ranch.
- Tribal Wildlife and Outdoor Recreation Division stores and uses copper sulfate in treating algal growth in recreational lakes.
- The Arizona Department of Transportation, with approval from the Tribal Environmental Planning Office, uses herbicides for treatment of exotic species along the Highway 73 right-of-ways.
- The Tribal CDC utilizes some pesticides for rodent control in rental houses at Hawley Lake and Hon Dah.

## **IX. Monitoring**

### **A. Background Conditions**

Tribal Utility Authority's annual sampling records reveal no pesticides contamination in any Tribal drinking water sources on the Reservation. Any detection of contaminants in drinking water systems or sources that exceed Tribal or Safe Drinking Water Act standards must be reported in annual Consumer Confidence Reports.

In lieu of any evidence to the contrary, the background condition of pristine groundwater quality (in sources with less than 10,000 parts per million total dissolved solids) is assumed for the entire Fort Apache Indian Reservation. Surface water samples taken as part of the Tribe's Annual Water Sampling Plan provide background conditions for important streams and springs on the Reservation.

For any proposed applications of more than five (5) gallons or more than one (1) acre on the Fort Apache Indian Reservation, or at the discretion of the Tribal entities responsible for approving the pesticides use permit, the applicant may be required to consent to a monitoring plan to evaluate pre- and post-application site conditions. Depending on the site, samples may include soil and/or water media. Tribal Hydrology and Water Resources Program, Environmental Planning Office, and/or Watershed Program as well as BIA Environmental Quality Services staff may handle collection and processing of samples for the applicant. Pre-application samples will serve to document background conditions and will allow for accurate assessment of impacts from pesticides applications at the site.

## B. Sampling Rationale

Each approved pesticides permit will include a list of conditions for approval, including requirements for sampling. The timing and frequency of sampling and the list of analytes will be determined on a case-by-case basis by the entities responsible for approving the permit (see Section IV). In general, sampling plans will be designed to document background conditions in soil, shallow groundwater (if any), and ponds, lakes, or springs (if any), and will target potential runoff pathways. All permits will have the stated objective of preventing any and all pesticides from leaving the site of application. The extent of sampling will be commensurate with the estimated risk to humans and natural resources as indicated by: a) leaching potential and environmental persistence of chemical compound; b) proximity to areas frequented by humans such as schools, churches, etc.; c) proximity to important water resources; d) vulnerability of underlying and downgradient groundwater; e) potential for surface runoff and/or wind dispersal (including consideration for season of application); and e) cultural values requiring additional safeguards.

## **X. Preventative Actions**

### A. Groundwater Protection Approach

All groundwater under the surface of the Reservation is important, and it is the Tribe's policy to protect its natural resources from contamination. At the same time, the Tribe recognizes the inherent difficulty of managing water resources with the small staff and limited fiscal resources available. The groundwater protection effort will employ three strategies to focus its prevention-based effort to protect those resources most vulnerable to contamination. First, certain resources such as surface waters or wetlands are so important that activities that directly impact these resources are forbidden. For example, the direct application of a pesticide to a stream or wetland through aerial application is prohibited. Second, an effort will be made to evaluate the potential for a pesticide to contaminate groundwater by considering the chemical properties of the pesticide, the extent of its use, and the vulnerability of the groundwater system.

Finally, Tribal protection efforts will focus on valuable infrastructure investments, such as community wells.

This plan establishes protection measures reflecting the risk posed to groundwater and surface water. These factors incorporate both the natural sensitivity of the water resource and the intrinsic potential for a given pesticide to adversely impact that resource. This approach recognizes that available information may not allow for the implementation of site-specific control measures without the collection of additional field data. For the cases where individual farm plans developed by the Farm Services Agency (U.S. Department of Agriculture), Tribal lease agreements, and/or Memoranda of Agreement exist, these documents will be used to assure site-specific protection measures (including prohibitions) are fully implemented to protect vulnerable areas and manage the use of any pesticide requiring a Tribal management plan prior to its continued use on the Reservation.

Prior to approving a use of any pesticide that is identified by U.S. EPA as one that may leach into groundwater, the Tribe may require the development of site-specific information in order to implement a pesticide- or site-specific management plan.

In addition to targeting sensitive areas for increased scrutiny, the Tribe recognizes that all pesticides, if not properly handled, applied, and disposed, can pose a serious threat to groundwater and surface water quality, as well as human and environmental health. In addition to standards in FIFRA, the Tribe has adopted the following more restrictive provisions through implementation of this GPMP:

1. All persons applying restricted-use pesticides on the Reservation must possess a current "Certified Applicator" license issued by the U.S. EPA, White Mountain Apache Tribe, or State of Arizona.
2. No person or entity shall be permitted to sell restricted-use pesticides on the Reservation.
3. All pesticide applications on the Reservation must conform to U.S. EPA-approved methods and purposes specifically designated on the product label.
4. Any person employed by the Tribe to apply pesticides on a regular or recurring basis must receive **training by a certified applicator** (see item 1. above) prior to applying pesticides on the Reservation.
5. In the event that a pesticide or other toxic substance is detected in groundwater anywhere on the Fort Apache Indian Reservation, use of that substance is banned within 1000 feet of surface water, in areas with groundwater at less than 100 feet below ground surface, in recharge areas, and in any other source water or sensitive species protection zones.

Ongoing efforts by the Tribal natural resources programs<sup>4</sup> to collect additional data and provide a better understanding of the natural resources of the Reservation will continue. As new information on the condition of natural resources and on the toxicity and fate of pesticides becomes available, the Tribe will update and revise its protection efforts. Education is an important component to the Tribe's overall groundwater protection approach and pesticide management program.

#### B. Resource Sensitivity and Vulnerability

The vulnerability of a groundwater resource to contamination is closely tied to its sensitivity to factors, both natural and cultural, controlling contaminant transport. *Sensitivity* describes the degree of perturbation in the natural system required for a response. For example, natural sensitivity to contamination exists at sites with soils which readily transmit contaminants (sands versus clays), surface water (an immediate conduit to wildlife and shallow groundwater), and/or fractured bedrock. At these sites, introducing even small concentrations of contaminants, especially during periods of heavy rain, may have broad repercussions because the contaminants may move rapidly through the system to a point where humans or other living organisms are impacted.

The *vulnerability* of groundwater to contamination by pesticides depends upon both natural sensitivity as well as cultural factors. The proximity of the site to community and individual wells (which can serve as contaminant conduits from the surface to groundwater), the method of chemical application, the type of crops raised (and associated agricultural practices), and the environmental persistence of each pesticide all contribute to the vulnerability of underlying groundwater. All other things being equal, more sensitive sites will be more vulnerable than less sensitive sites. However, a sensitive site with no cultural risk factors would not be considered vulnerable.

Two types of cultural infrastructure investments increase aquifer vulnerability. The first is community and individual wells. All wells represent potential pathways for contaminants to reach groundwater, but community wells are potential contamination vectors for large numbers of people and represent substantial Tribal investments in facilities developed to protect Tribal and non-Tribal members. **Protecting these wells from contamination either through the well head or via recharge is vital to the health and welfare of the White Mountain Apache people.** The second type of infrastructure investment that exacerbates aquifer vulnerability to contamination is irrigated agriculture. Irrigation, by definition, involves bringing more moisture than naturally would be available to a site. This additional water can transport pesticides that would otherwise be less likely to migrate into the groundwater system. By reducing the time a

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<sup>4</sup>Tribal natural resource programs include Environmental Planning, Hydrology and Water Resources, Watershed Planning, Wildlife and Outdoor Recreation, and Forestry programs.



pesticide is exposed to the sun and air, irrigation impedes the natural breakdown of that substance. Irrigation can also change groundwater levels, as well as surface and soil-zone hydrology. All irrigated lands where pesticides are applied are considered vulnerable to groundwater contamination and require special care.

The sensitivity of the natural resources and vulnerability of the groundwater to human-caused intervention provides the basis for identifying levels of risk, prioritizing individual management actions, and identifying a monitoring strategy to focus on areas where problems may be first detected. The vulnerability of the groundwater determines the level and type of action needed to protect the resource.

The vulnerability matrix shown in Table 1 identifies five site conditions of concern relating to groundwater and surface water conditions at the application site with different initial protection measures required for each one. Management restrictions shown in the table reflect increasingly more stringent restrictions with increasing groundwater vulnerability. Additional measures may be included to address site-specific concerns such as protection for sensitive plant and animal species, or factors identified by the Tribe as vulnerable to the pesticide due to its potential to impact groundwater or surface waters.

All pesticides pose a risk to groundwater, surface water, wildlife, and human health if they are not properly used, handled, stored and disposed. Applicators are required by this plan and by U.S. EPA under FIFRA to follow labeling instructions. In addition, farmers are asked to implement voluntary Best Management Practices (BMPs).<sup>5</sup> **The use of any pesticide labeled as having a propensity to migrate through soil and contaminate groundwater is prohibited near streams, within source water protection areas, and over sensitive aquifers.** Furthermore, the use of any pesticide detected in any groundwater on the Reservation is prohibited with 1000 ft. of surface water and in any other source water. BMPs for pesticide use and storage are required for other vulnerable areas. Unregistered pesticides as well as those requiring a "State Management Plan" under U.S. EPA rules are prohibited on the Reservation<sup>6</sup>.

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<sup>5</sup> Until Tribal BMP's become available, information on proper storage and handling of pesticides is available online at <http://www.epa.gov/seahome/pest/src/title.htm> or by contacting the Tribal Hydrology and Water Resources Program at 928-338-4346 x 310.

<sup>6</sup>The Tribe reserves the right to develop U.S. EPA-approved management plans for pesticides requiring State Management Plans under U.S. EPA rules to permit use of those substances on the Reservation.

Table 1

**Ground Water and Pesticides Vulnerability Action Matrix**

		Groundwater/Surface Water Condition at Application Site				
		sensitive aquifer	less sensitive aquifer or no aquifer	within 300 ft. of surface water	300-1000 ft. from surface water	source water protection area
<b>Pesticide Condition</b>	pesticide-specific mgt. plan required by U.S. EPA	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>	prohibited <sup>†</sup>
	restricted use label	site-specific mgt. plan	required BMPs	prohibited	site-specific mgt. plan	site-specific mgt. plan
	pesticide detected in groundwater on Fort Apache Indian Reservation	prohibited	site-specific mgt. plan	prohibited	prohibited	prohibited
	detected in groundwater elsewhere in U.S.	site-specific mgt. plan	required BMPs	prohibited	site-specific mgt. plan	site-specific mgt. plan
	registered pesticide (non-restricted use)	required BMPs	voluntary BMPs	required BMPs	voluntary BMPs	site-specific mgt. plan
	non-registered pesticide	prohibited	prohibited	prohibited	prohibited	prohibited

<sup>†</sup> unless the Tribe develops a formal pesticide-specific management plan

**XI. Response to Detections of Pesticides**

The ultimate successful outcome of the prevention activities outlined in Section X of this plan would be perpetual maintenance of soil and water contaminant levels below detection limits. In lieu of that achievement, the best possible outcome is that any detection of pesticide in groundwater, soil, or surface water becomes reason for concern and triggers mitigation efforts designed to protect human health and the environment.

A. Detection in Groundwater

In the event that a pesticide is detected at any level in groundwater, the Tribe will undertake an immediate investigation to determine and *halt* the cause of the contamination. The results of that

investigation will be used to assess the cause and source of the contamination and develop site-specific remediation measures. Assessing the cause and source of the contamination requires the following actions:

- determining the point of entry into the natural system, including the areal extent of the contamination source;
- determining the mechanism by which the release occurred, and the mode of transport to the groundwater system;
- determining whether the release was the result of an accident or improper use, storage, handling, or disposal of the pesticide;
- documenting the type of chemical and amount released. (If the release was distributed over a long period, document the application rate and duration.); and
- determining the responsible party.

The facts related to cause and source of contamination will be used to: first, halt the release process; second, develop a site-specific remediation plan; and finally, to pursue legal action (see Sections II and IV.c) against any party or parties believed to be responsible for contamination as a result of illegal or improper use of pesticides. The site-specific remediation plan will take into account the risk to human health and the potential for remediation to natural (or pre-release) groundwater conditions. The Tribal Hydrology and Water Resources Program, with assistance from the Environmental Planning Office and other appropriate entities, will take primary responsibility for coordinating the investigation. The pesticide permittee is responsible for development and execution of the remediation plan, but the plan must be approved in writing by the Tribal Hydrologist. Elements of the remediation plan must include, at a minimum:

- i. a sampling plan (may include groundwater, surface water, soil, air, or other media) to monitor the effectiveness of mitigation measures, including sampling sites, number of samples, analytes, frequency and duration of sampling, and quality assurance protocols.
- ii. actions to address the source (may include halting irrigation, excavating contaminated soil, application of biological degradation agents, etc.);
- iii. actions (if any) to remediate the groundwater system (this decision will reflect the realistic potential for remediation, and may include preliminary trials to evaluate the effectiveness of the action(s));
- iv. designation of party or parties responsible for executing the sampling and remedial actions;
- v. time line for implementing the sampling and remedial actions.

For groundwater detections at levels above Maximum Contaminant Levels (MCLs) specified in the Safe Drinking Water Act, the Tribal Hydrologist, with assistance as requested by outside agencies such as Indian Health Service - Office of Environmental Health and Engineering, will assess the potential risk to human health from the contaminated groundwater. This risk assessment

will provide the basis for taking action beyond the site-specific remediation plan to protect human health. In the event that the contamination presents a risk to public drinking water sources, immediate action to discontinue production from that aquifer and to advise the public of the risk is required. The Tribal Utility Authority shall be informed of the problem and notified that all pumping from wells in that area must stop until further notice.

#### B. Detection in Soil

Any detection of a pesticide in soil as part of a site-specific management plan shall be cause for re-evaluation of that plan. Contamination extending for a period of one (1) month or more, will be cause for concern and will trigger an investigation into the source and cause of the contamination (see Section XI.A above). The Tribal Hydrology and Water Resources Program, with assistance from the Environmental Planning Office, will take primary responsibility for coordinating the investigation. The pesticide permittee is responsible for development and execution of the remediation plan, but the plan must be approved in writing by the Tribal Hydrologist. At a minimum, the remediation plan should include:

- i. a sampling plan (may include groundwater, surface water, soil, air, or other media) to monitor the effectiveness of mitigation measures, including sampling sites, number of samples, analytes, frequency and duration of sampling, and quality assurance protocols.
- ii. actions to address the source (may include halting irrigation, halting pesticides applications; excavating contaminated soil, etc.);
- iii. actions to remediate the soil system (may include removal of contaminated soil, application of biological degradation agents, etc., and preliminary trials to evaluate the effectiveness of the action(s));
- iv. designation of party or parties responsible for executing the sampling and remedial actions;
- v. time line for implementing the sampling and remedial actions.

If soil contamination poses an immediate risk to drinking water sources, action to cease production from the underlying aquifer and to notify the public of the risk is required. The Tribal Utility Authority shall be informed of the problem and notified that all pumping from wells in that area must stop until further notice.

#### C. Air-borne Transmission

Pesticides sampling on lands adjacent to sites of aerial or large-scale spraying applications must be incorporated into site-specific management plans for those applications. Any detection of pesticides on any land where no pesticide was intentionally applied will be cause for concern, and will trigger an immediate investigation into the source and cause of the contamination. As a precaution, the Tribal Hydrologist or his/her designee (or Environmental Planning Programs

Manager) may shut down the aerial or other pesticide spraying operation until the investigation is concluded and the contamination issues have been resolved. Priority will focus on determining any human health risk posed by the spraying. The investigation into source and cause should follow the guidelines described under Section XI.A ("Detection in Groundwater"). The Indian Health Service-Office of Environmental Health and Engineering may provide assistance in evaluating potential risk to human health.

Once the cause and source of the contamination have been determined, a site-specific remediation plan must be developed. The pesticide permittee is responsible for development and execution of this plan, but the plan must be approved in writing by the Tribal Hydrologist. At a minimum, the remediation plan should include:

- i. a sampling plan (may include groundwater, surface water, soil, air, or other media) to monitor the effectiveness of mitigation measures, including sampling sites, number of samples, analytes, frequency and duration of sampling, and quality assurance protocols.
- ii. actions to address the source (may include temporary or permanent cessation of spray application of pesticides on the Reservation);
- iii. actions to remediate the affected area (may include removal of contaminated soil, water and/or other contaminated materials, application of biological degradation agents, etc., and preliminary trials to evaluate the effectiveness of the action(s));
- iv. designation of party or parties responsible for executing the sampling and remedial actions;
- v. time line for implementing the sampling and remedial actions.

If air-borne transmission of pesticides is detected in water bodies, or poses an immediate risk to human health through water supply contamination, action to cease production from the underlying aquifer and to notify the public of the risk is required. The Tribal Utility Authority shall be informed of the problem and notified that all pumping from wells in that area must stop until further notice.

## **XII. Public Awareness and Participation**

- A. Public awareness of this plan will be achieved through articles in the Fort Apache Scout newspaper and by submitting copies of the plan to all relevant Tribal, Federal, and other agencies operating on the Reservation.
- B. Training requirements for prospective applicators will be discussed by the Tribal representative issuing the permit (usually the Tribal Hydrologist) and the permittee upon issuance of any pesticides use permit.
- C. The following provisions for notifying the public of any risk to human health, particularly associated with contamination of drinking water supplies, will apply as part of the Tribe's response to a detection of pesticides:

1. The target audience for public notification are residents of the Fort Apache Indian Reservation, as well as any other individuals who may be impacted by pesticides contamination on the Reservation.
2. Methods used to reach the public may include, but are not limited to, radio announcements on the local station (KNNB), door-to-door notifications, and articles in the Fort Apache Scout newspaper.
3. In the case of an imminent risk to human health, radio announcements and attempts to personally contact individual residents living and/or working in the impacted area will be undertaken.

### **XIII. Records and Reporting**

The Tribal Hydrology and Water Resources Program will maintain records relating to the implementation of this GPMP indefinitely. Information in these records will include, at a minimum:

- permits issued,
- monitoring or sampling conducted as part of a permitted or non-permitted pesticides use,
- results of analyses,
- reports issued,
- types and numbers of enforcement actions taken,
- records of any site-specific regulatory actions, and
- administrative actions.

**Appendix A**

**Tribal Resolution Adopting  
Groundwater Pesticides Management Plan of the White Mountain Apache Tribe**