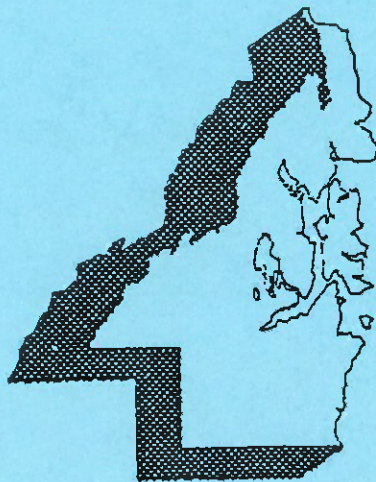


SECTION IV



SECTION IV

GROUND WATER RESOURCE MANAGEMENT

1. STATE FEDERAL AND LOCAL RESOURCE ORGANIZATIONS

There are numerous agencies at the local, State, and federal level which operate programs with the potential to effect groundwater quality and quantity. A listing of these agencies, with a description of their jurisdictions and programs can be found in Table IV-1 through Table IV-3. On the local level, these jurisdictions are divided mainly among Kitsap County, municipalities, and local utility, water, and sewer districts. The primary state agencies with programs affecting groundwater are the Department of Ecology (Ecology) and the Department of Health (DOH). The Departments of Agriculture, Natural Resources (DNR), Fisheries, and Wildlife play supporting roles in protecting groundwater quality. On a Federal level, the U.S. Environmental Protection Agency (EPA), the U.S. Geological Survey (USGS), and the Department of Agriculture (WSDA) are the key agencies in groundwater protection. These agencies support a wide variety of programs which deal with groundwater quality and quantity. A summary of their jurisdictional areas can be seen in Exhibit IV-1.

A. Local Agencies

A summary of local agencies can be found in Table IV-1 and a matrix of responsibilities at the local level for various land use activities which could potentially affect groundwater is summarized in Table IV-4. Table IV-5 contains a summary of these groundwater management responsibilities. There are several departments within Kitsap County which provide primary and secondary support of groundwater related programs.

(1) Bremerton/Kitsap County Health Department

The Bremerton/Kitsap County Health Department (BKCHD) is responsible for Class 3 and 4 drinking water supplies and serves as an advisory agency for larger public water supply wells. The BKCHD is also involved in assessing health impacts of landfills by conducting ground and surface water quality monitoring to determine potential contamination from leachate, permitting of on-site sewage disposal facilities, design approval of liquid waste facilities (lagoons and holding ponds), and small quantity hazardous waste management. In general, the BKCHD provides technical support and assessment on issues pertaining to public health. Jurisdictional boundaries include all of Kitsap County.

(2) Kitsap County Department of Community Development

Numerous programs within the Kitsap County Department of Community Development (DCD) support and/or directly implement protection of groundwater resources. They develop land use plans throughout unincorporated Kitsap County, implement the various subarea plans, and create and classify land use and zoning categories. Commercial and residential building permits are issued, the State Environmental Policy Act (SEPA) enforced, and sensitive area reviews are initiated. The DCD is also involved in water and sewer utility planning and watershed and basin planning for control of non-point pollution sources.

(3) Kitsap County Department of Public Works

Kitsap County Department of Public Works (KCPW) is responsible for control of stormwater runoff and enforcement of drainage regulations and operation and maintenance of sewerage facilities throughout the County. In addition, they control herbicide and pesticide application on County roads and rights-of-way and operate and maintain county landfills.

(4) Other Kitsap County Agencies

The Kitsap County Soil Conservation District is charged with promoting and implementing local conservation programs. They play a lead role in agricultural and soil erosion measures to minimize adverse water quality impacts. Kitsap County Fire District's primary responsibility is fire protection. However, they do contain local hazardous materials response units which respond to hazardous materials spills.

(5) Municipalities

Incorporated cities within the Kitsap County Ground Water Management Plan (GWMP) boundary include Bremerton, Poulsbo, Port Orchard, and Winslow. They provide land use planning, implement their respective zoning regulations within city boundaries, and in some cases provide water and sewer service. Municipalities also have the authority to issue construction permits and initiate planning and policy related to surface and groundwater quality concerns within their boundaries.

(6) Districts

The water and sewer districts located within Kitsap County, and their jurisdictional boundaries, can be seen in Exhibit IV-1. The water districts provide potable water to customers within their jurisdiction. They are primarily responsible for groundwater development, protection of source waters, and must insure that the supply meets current state and federal drinking water regulations. They are also involved in maintaining records on status of supply, i.e. water level and pumpage, and control use of herbicides or pesticides on their property. The sewer districts provide collection and in some cases treatment of sewage within their service area boundaries

B. State Agencies

The primary state agencies involved in groundwater management are DOH and Ecology. The WSDA, DNR, and the Puget Sound Water Quality Authority provide secondary and supporting roles. A summary of state agencies which have programs connected to groundwater management can be found in Table IV-2. A matrix of responsibilities at the state level for various land use activities which could potentially affect groundwater is summarized in Table IV-6.

The DOH regulates drinking water quality, conducts water system plan reviews, and approves well site applications. They are also charged with investigation of public health concerns related to drinking water contaminants and provide support to local health agencies in public health matters. They review alternative on-site system applications and provide technical information on on-site septic systems' design and installation. Ecology is directly responsible for developing groundwater quality standards and implementation of state activities regarding groundwater quality and resources, including water rights. Ecology programs which secondarily impact groundwater resources include the solid and hazardous waste program, underground storage tank program, and point and non-point source pollution programs. The WSDA issues permits for pesticide application on agricultural lands and also provides technical expertise in the area of pesticide contamination of groundwaters. The WSDA has entered into an agreement with DOH and Ecology. This agreement states that the WSDA will provide information on pesticide practices, identify problem groundwater areas, and investigate complaints of well contamination in agricultural areas. DNR manages state lands and maintains programs controlling surface mining activities, chemical vegetation control, and regulates state forest practices. The Washington Department of Transportation (WSDOT) provides technical assistance

on water quantity and quality issues pertaining to stormwater runoff from highways. WSDOT also controls use of pesticides and herbicides on State roads and rights-of-way. The Puget Sound Water Quality Authority has developed and is implementing a comprehensive management plan for Puget Sound and its related waterways. This involves control and management of both point and non-point sources of pollution.

C. Federal Agencies

The EPA and USGS are the primary federal agencies responsible for groundwater management. A summary of federal agencies can be found in Table IV-3. A matrix of responsibilities at the federal level for various land use activities which could potentially affect groundwater is summarized in Table IV-7.

The EPA provides technical assistance to the State in the areas of groundwater quality and distributes federal funds for groundwater programs. They oversee the Safe Drinking Water and Clean Water Acts and their Office of Groundwater contains both a wellhead protection program and sole source aquifer program. They are also involved in review and approval of groundwater quality standards, underground storage tank programs, and hazardous waste and superfund activities.

The USGS provides technical information on groundwater resources, aquifer depletion, seawater intrusion, and groundwater quality data.

The Corps of Engineers is responsible for activities on or near shore lines of all navigable waters and wetlands. They permit construction activity and disposal of dredged materials in these areas. The U.S. Department of Agriculture provides technical information on non-point source pollution from agricultural activity and the Agriculture/Stabilization and Soil Conservation agency administers federal funds for agricultural projects, i.e. waste storage facilities and erosion control.

In addition, the Suquamish and Klallam Indian tribes have jurisdiction over activities on the Port Gamble and Port Madison Indian Reservations and had actively participated in the Groundwater Advisory Committee for Kitsap County. The locations of the reservations are shown on Exhibit IV-1. The Tribes have conducted reservation-wide groundwater studies, conducted streamflow measurements, and monitored specific wells within their jurisdiction.

2. **EXISTING RESOURCE MANAGEMENT CONCERNS**

The Ground Water Advisory Committee (GWAC) and its Technical Subcommittee worked with the Consultants in a joint review of the technical issues discussed in Section II of this report. Based on this information, potential

problems and concerns of existing groundwater management practices currently affecting Kitsap County were identified. Some of these concerns relate to technical, institutional, and financial issues.

Paragraph 1 of this Section summarized the existing groundwater management programs and responsibilities of various local, State, and federal entities/ agencies. In general, these programs are being diligently pursued although there occasionally is some overlapping or uncoordinated effort. During the review of these responsibilities with the GWAC, several categories of concern were identified that bear further evaluation. The complexities of many of the issues listed below suggest that political, institutional, technical, and financial solutions are not easily, nor readily, attainable. Much of Grant No. 2 activities will be devoted to further evaluation of these issues.

The major categories of concern regarding improved groundwater management activities are summarized below:

A. Data Limitations

The collection of technical information used in preparation of the GWMP revealed several shortfalls in the sufficiency of data needed to accurately establish aquifer characteristics and water quality. Specifically, existing records available through County agencies, major purveyors, and other private water well owners revealed a lack of historical information necessary to accurately determine trends for several important items including water levels, pumpage, stream gaging, and water quality. Part of this problem stems from the lack of wells desired to monitor the aquifer found at various geographic locations and depths throughout the area. As a result, the GWMP Grant No. 1 activities had partial success in determining levels of background information.

Therefore, it is recommended that a comprehensive data collection strategy and network of specific groundwater wells be established. Section III provides a recommended monitoring network. The network eventually implemented should also be structured to collect data useful for future groundwater modeling efforts throughout Kitsap County. Notwithstanding the need to obtain financing for the startup and maintenance of the activities, implementation of this program must be accomplished at the local level. However, State and federal agency support is critical to ensuring that uniform and consistent procedures and reporting formats are created and interpreted.

B. Data Management Responsibilities

With improved levels of water resource information comes a complex problem of reporting, recording, and managing this information. This

responsibility is one that has been shared primarily by federal and State agencies. Their priorities and focus are, therefore, logically at a larger scale.

A computerized database and database management system were developed as part of GWMP Grant No. 1 efforts. The database management system was designed to accommodate well construction, water level, geologic, owner, and water quality data that is commonly collected from wells during installation or subsequent sampling. The system in its present form provides a useful tool for long-term groundwater management. However, the database will need to be maintained over time and its data handling capabilities expanded.

A long-term program for data gathering, reporting, and processing needs to be established. The Public Utility District No. 1 of Kitsap County (District) has the responsibility for water resource management throughout the County. As such, the District is assuming responsibility for data management and AutoCAD support activities at the local level to facilitate the orderly accumulation and management of accurate data. The District is pursuing the establishment of computerized data centers with utilities and agencies within the County. This approach will be pursued during Grant No. 2 and may lead to the placement of computers with entities who will routinely report data useful to the monitoring program.

Other agency responsibilities need to be identified, including who will be responsible for data collection and verification. In addition, data exchange protocols need to be established so that all agencies responsible for groundwater management have adequate access to the information gathered.

The computerized database management system should be expanded in the following areas:

- o Integrated with Kitsap County databases through the Assessor parcel numbering system.
- o Develop procedures for processing water use information.
- o Expand the data reporting capability to provide better access to the data that is stored in the system.
- o Develop procedures to facilitate linkage between water quality data stored within PCSTORET with the physical data contained within the database management system.

- o Develop procedures for storing and manipulating streamflow and precipitation data.

C. Improved Inter-agency Coordination

In spite of the fact that this Section has identified several agencies taking active roles in groundwater management activities, there is still a lack of several important areas of coordinated responsibilities. Some major issues addressed by the GWAC are as follows:

(1) Uniform Well Identification Numbering System (UWIN).

Presently, there is a lack of correlation between well site location information and specific wells. This problem applies to wells drilled within Kitsap County and throughout the State. It is currently impossible to correlate a variety of important reporting forms related to water well logs, water quality results, etc. This inadequacy also limits the effectiveness of a database system that is linked to digitized computer mapping.

One proposed solution is to tag the well casing within a UWIN. Implementation of a UWIN system would require interagency cooperation at the state and federal level in adopting a new well numbering standard, as well as a commitment by local government to provide enforcement of the program. If possible, UWIN should be tagged to all the existing wells through a prioritized schedule that may be tied to a condition of property sales, etc.

Examples of effective programs being conducted in the States of Kansas, Wisconsin, and Minnesota, lend support to the recommendation that a UWIN program be instituted in this locality and throughout the State of Washington. It is an issue that has been jointly evaluated by other groundwater management areas throughout the State. No doubt, such an effort will require State legislative support and funding.

(2) Abandoned Wells

The issue regarding abandoned wells is one of significant concern. The magnitude of the problem within Kitsap County is not well-defined. Discussions with representatives from State and County agencies, GWAC members, and public and private purveyors indicate that the existence of unabandoned wells is prolific throughout this and other areas of the State. One estimate cited over 250,000 unused but unabandoned wells within the State. Improperly abandoned or unabandoned wells provide an open conduit for

surface contaminants to pollute groundwater aquifers. Current legislation within the State provides procedures on how to properly abandon wells, but does not require the mandatory abandonment of wells without documented evidence of health impacts.

State programs in Kansas and elsewhere have been reviewed. The effectiveness of these programs hinges on local enforcement. However, program funding is provided by state property tax monies or other sources. These funds pay for abandonment costs of the well owner. Some states have opted to provide monies under a "sunset" clause to well owners. Those who abandon their wells prior to a specified deadline are compensated by the state. After the deadline, well owners may be penalized and are individually responsible for the abandonment costs.

Specific statutes regarding proper abandonment, procedures, liability, and funding are needed at the state level to uniformly address this issue. It is recommended the GWAC work with other committees throughout the State in educating the public as to the magnitude of this problem, and building support throughout special interest groups and State legislators to correct this inadequacy.

D. Water Rights

The review of existing water rights within Kitsap County revealed that water rights have been issued to well owners for facilities that may not be still actively operating. The problems associated with this are significant. The implication is that over appropriation of water rights will skew knowledge regarding the utilization and availability of groundwater supplies needed to meet the future needs of all users. Water right conflicts may be further complicated by minimum instream flow requirements proposed for surface waters on the Olympic Peninsula which are included in potential conjunctive use supply programs for the County. Conjunctive groundwater/surface water supplies are already relied upon through the 15 MGD of current surface supply from the City of Bremerton's Casad Dam. Ecology has procedures for the relinquishment of unused water rights. The review and relinquishment of unused rights needs to be enforced by Ecology and locally supported.

E. Aquifer Overdrafts and Limitations of New Wells

A major issue requiring attention in the near future relates to the necessity for placing limits on overdevelopment of aquifers. The study has concluded that aquifers within the Gilberton, Manette, and Bayhead areas may be approaching their supply limits. The implication of aquifer

overdrafts has a corresponding impact upon surface waters and wetlands. Whereas, this does not currently appear to be a regional problem, the absence of more detailed information may yield different conclusions once more fully evaluated. It will be important to establish what is an acceptable limit of aquifer drawdown and during what conditions should overdrafting occur, if at all. Decisions need to be rendered regarding acceptability of aquifer overdrafts for peaking purposes, or extreme droughts, as opposed to sustained and continuous water level drawdowns.

F. Conjunctive Use/Artificial Recharge

Demand forecasts prepared by the GWMP indicate that groundwater supplies may be sufficient to meet future requirements of Kitsap County if large quantities of groundwater can be developed in the West and South Kitsap areas. If these supplies are not available, a conjunctive supply program will be needed to effectively meet future supply requirements.

The District and City of Bremerton have filed water right applications on the Olympic Peninsula's Duckabush and Hamma Hamma Rivers, respectively, for 100 cfs (65.6 MGD), with Bremerton having another 10,000 acre feet for storage on Jefferson Creek. Minimum instream flow regulations previously proposed by Ecology in WAC 173-516, Instream Resources Protection Program - Skokomish-Dosewallips Water Resource Inventory Area (WRIA 16), would eliminate the ability for either the District or the City to utilize these water rights. The domestic supply capacity from the Hamma Hamma River has been estimated to be approximately 70 MGD for average flows of 100 MGD for peaking purposes. Capacity estimates for a similar facility constructed on the Duckabush River are approximately 65 MGD.

Aiding in the conjunctive use strategy is the possibility of artificial recharge. Artificial recharge would be accomplished by injecting surface water supplies into groundwater aquifer systems during winter months when surplus stream flows exist. Stored waters could be withdrawn during peak demand periods to meet short-term instantaneous requirements. These instantaneous requirements generally occur in summer months when surface supplies are at their minimum. Whereas the combined conjunctive use/artificial recharge concept appears to pose benefits to both instream and out-of-stream users it poses several significant questions regarding technical and administrative issues.

The hydrostratigraphy and groundwater geology of a selected artificial recharge site must provide the proper qualities to allow the injection, storage, and withdrawal of water in an efficient manner. Grant No. 1

activities of the GWMP did not establish sufficient information to recommend specific artificial recharge sites. However, site-specific investigations are required before the suitability of any site is established.

The co-mingled condition of surface and groundwaters also presents potential water right questions regarding point of withdrawal and point of use disputes. In addition to the quantitative issues, qualitative issues must be addressed regarding the co-mingled water chemistry of surface and groundwaters. Aggravated iron and manganese concerns, oxygen content, organic concentrations, pH adjustments, and several other chemical parameters of interest need to be specifically evaluated at each site. Further detailed studies are required in order to fully analyze artificial recharge as a viable supply option.

G. Public Education/Awareness

The lack of attendance at GWMP public workshops, as well as other public meetings for regional resource activities in Kitsap County emphasize a lack of information or interest by the public on water resource issues. Recent drought conditions in 1977 did help to draw attention to this matter. However, the lack of severe contamination or resource limitations make it difficult to obtain active participation by wide-spread groups of citizens in a preventive program.

The GWAC feels that education and public awareness is vital for several obvious factors, including support for proper funding and administrative controls, where needed, to protect aquifer recharge. Intensive programs in conservation, stormwater management, land use controls, household waste management, and other examples of resource protection will require support by local citizens, as well as legislative and economic incentives to see that implementation occurs. Financially, an educated and supportive populace is critical in developing and maintaining proper levels of funding at the local, State, and federal level to implement and maintain water resource protection and management programs.

3. **RESOURCE MANAGEMENT ISSUES AND STRATEGIES**

During Grant No. 1, the GWAC obtained additional citizen input regarding resource management issues at a Groundwater Fair and at GWAC Committee meetings conducted throughout the County. This input has been used to prepare a list of issues shown in Table IV-8 which supplements the items discussed in paragraph 2. The Policy Subcommittee has met once to review the citizen input. The list is dynamic and subject to further modification by the GWAC. Eventually, policies will be developed, adopted, and certified by the GWAC during

Grant No. 2 activities. The intent of these policies will be to provide procedures and guidelines for local, County, and State agencies regarding groundwater resource management programs.

The County has authority, under SEPA (Chapter 43.20C RCW) and the Planning Enabling Act (Chapter 36.70 RCW), to control development so as to protect groundwater. However, conditioning or denial of permits must be based on specific adverse impacts. Furthermore, reasonable mitigation measures must be set forth, or, if no mitigation exists, reasons why impacts are unavoidable must be stated.

In general, the data collected from the GWMP Grant No. 1 activities is not sufficient to address site-specific issues. A much more extensive site specific evaluation should be expected in order to provide detailed policy decisions which could significantly alter previously approved site-specific land use decisions. Nonetheless, Grant No. 1 activities of the GWMP does provide a good indication of where key sensitive areas are located. These vicinities are described in Section III. Therefore, in these areas, it may be appropriate to require more detailed investigation of groundwater aquifer impacts prior to approving a proposed activity. Continued data refinement is needed in many of these areas to render these decisions.

Solutions for Resource Management Concerns, identified previously for Data Limitations, 2A, and Data Management, 2B, need immediate attention. The need to collect additional data was well documented in Grant No. 1 activities. This led to the monitoring and data collection recommendations presented in Section III. Continued data collection should not be deferred until completion of the GWMP.

TABLE IV-1
KITSAP COUNTY AGENCIES/CITY GROUNDWATER PROGRAMS

Name of Agency	Description of Agency's Area(s) of Jurisdiction	Controlling Documents, Statutes or Ordinances	Description of Activities Potentially Affecting GW	Names of Programs or Projects in Kitsap County
LOCAL				
Kitsap County Commission	Kitsap County	WAC 173-100-090, RCW 90.44.410:Enactment of ordinances and Washington State Constitution :regulations governing :protection of ground water :RCW 36.70 :resources		Subarea Plan review
Kitsap County Public Works Department	Kitsap County	RCW 36 :RCW 70.95	Road Construction/Maintenance : Herbicide Application :Drainage system construction : and maintenance :Sanitary Sewer Construction :Stream Gaging :Landfill Operation/Maintenance	
Bremerton/Kitsap Health Department	Kitsap County	RCW 70.05, 70.12, 70.118 :WAC 173-303, 304, 160 :WAC 248-50, 54, 84, 96, 98	Regulatory and Advisory :Water System/Well Sites :Sewage Disposal :Solid Waste Permits :Sludge Application sites :Conduct ground & surface water :monitoring at landfill sites	Drinking Water Program : (Primacy for systems with less :than 25 connections) :Liquid Waste Program :Solid Waste Program :Hazardous Waste Program
Kitsap County Department of Community Development	Kitsap County	Zoning Codes, Subarea Plans :Land Development Standards :Comprehensive Land Use Plan :SEPA	Implementation of Kitsap :County Subarea Plans :Develop land use policy plans :Develop zoning plans :Basin planning; including data :analyses, recommendations for :projects, land use changes, :regulations, and water quality :programs.	Central Kitsap Subarea Plan :South Kitsap Subarea Plan :Bainbridge Island Subarea Plan :North Kitsap Subarea Plan :Zoning Plan for Kitsap County :Basin Planning Program

TABLE IV-1 continued

Name of Agency	Description of Agency's Area(s) of Jurisdiction	Controlling Documents, Statutes or Ordinances	Description of Activities Potentially Affecting GW	Names of Programs or Projects in Kitsap County
Kitsap County Public Utility District #1	Service areas in North Kitsap	RCW 57.08.010	Source Development Herbicide/Pesticide use	
Water Districts	Service Area boundaries	RCW 57.08.010	Source development Herbicide/Pesticide use	
Sewer Districts	Service Area boundaries	RCW 56.08.010	Sanitary sewer construction and maintenance Wastewater treatment plant operation and maintenance Herbicide/Pesticide use	
Cities	City Limits	SDWA (PL 93-523) Rules & Regulations of State Board of Health/Water Supplies Municipal Ordinances RCW 56, RCW 35.67.010 RCW 35.67.020 Water System Comprehensive Water and Sewer Comprehensive Plans (where applicable) Zoning Plans	Water Source development Herbicide/Pesticide application on city properties Zoning	
Kitsap Soil Conservation District		RCW 89.08.005, .010, .200, .210, .220 (enclosed w/ survey) USDA Soil Conservation Service	Commercial farm and small landowner services in field and home drainage, animal waste control, pasture grass improvements, manure application, fencing and erosion control. Assists landowner, local organizations and agencies	Information/Education Long Term Agreements/Conservation
Puget Power	Throughout Kitsap County		Electric Util.-Investor Owned Fuel Storage Tanks @ Service Center and SW Generation Station, Substation Transformers Herbicide/Pesticide application on right-of-way	N/A

TABLE IV-1 continued

Name of Agency	Description of Agency's Area(s) of Jurisdiction	Controlling Documents, Statutes or Ordinances	Description of Activities Potentially Affecting GW	Names of Programs or Projects in Kitsap County
Fire Districts	Throughout Kitsap County	:RCW 52, 9A.48, 39.96, 46.16 :and 70.105	:Response to and reporting of :hazardous materials spills	:Emergency response program for :Hazardous materials spills

TABLE IV-2
STATE AGENCIES
GROUNDWATER PROGRAMS

Name of Agency	Completed By	Description of Agency's Area's of Jurisdiction	Controlling Documents Statuses or Ordinances	Description of Activities Potentially Affecting GW	Names of Programs of Projects In Kitsap County	Responsible Office/Individual	Phone No.
STATE							
Department of Agriculture	Robert P. Bettman, Asst. Dir. Agr. Serv.		RCW 17.21	licensing and permitting of pesticide applications on agricultural lands of both farmer and settler.	pesticide applications on agricultural lands of both farmer and settler.		753-5063
C. Alan Pattison, Director	Don Alexander, Hazardous Waste/ Chemical & Plant Div.		Various WAC's				
Washington State Conservation Commission	Robert P. Bettman, Admin. Officer/ Team	Responsible for guiding and assisting state's 48 local conservation districts.	RCW 89.06	no direct activities, except awarded grant to WCD to do work relating to source pollution.	Nonpoint Water Quality Information, Education, and Technical Assistance Program	Martin Boon, Chairman WCD	673-2318
Environmental Hearings Office		Appeals from Ecology and Shorelines actions			Pollution Control Hearings Board Shoreline Hearings Board Forest Practice Appeals Board Hydraulic Hearings Board		659-6327
Department of Ecology	Carol Jolly, SQ	Water Quality Protection thru enforcement of discharge regulations, and spill response activities.	RCW 90.48 - Water Pollution Control RCW 90.03 - Water Code 90.44 - Reg. of Public GW; 90.54 - Water Resource Act; 90.14 - Water Rights 18.104 - Well Construction; 43.21C - SEPA	Regional Office; issues waste discharge permits, enforces permit conditions, inspects municipal and industrial, responds to pollution incidents and spills to monitor clean-up activities; Regional Office; issues water right permits, regulates construction.	Northwest Regional Operations discharge permits, enforcement Water Resources Program Point, Non-Point Source Program stormwater management Solid and Hazardous Waste Programs Underground Storage Tank Program Illegal water users Well Drilling construction.	Nancy Ellison Nedie Adleson Carol Jolly Chris Meyers Thom Lufkin Bill Miller	867-7000 459-4000
(3 surveys completed)	Nedie Adleson, Water SQ Stu Clark, Air	enforcement of discharge regulations, and spill response activities.	RCW 90.03 - Water Code 90.44 - Reg. of Public GW; 90.54 - Water Resource Act; 90.14 - Water Rights 18.104 - Well Construction; 43.21C - SEPA	Regional Office; issues waste discharge permits, enforces permit conditions, inspects municipal and industrial, responds to pollution incidents and spills to monitor clean-up activities; Regional Office; issues water right permits, regulates construction.	Water Resources Program Point, Non-Point Source Program stormwater management Solid and Hazardous Waste Programs Underground Storage Tank Program Illegal water users Well Drilling construction.	Nedie Adleson Carol Jolly Chris Meyers Thom Lufkin Bill Miller	459-4000
	Thom Lufkin, USF's Rose Saunders, Hazardous Waste Management	regulation of water well construction. Underground Storage Tanks Hazardous Waste Management	RCW 70.105 - Hazardous Waste WAC 173-303 - Dangerous Waste SR 6005 - Pending Law of 1987	Regional Office; issues water right permits, regulates against illegal water users and regulates water well construction.	Underground Storage Tank Program Illegal water users Well Drilling construction.	Thom Lufkin Bill Miller	

TABLE IV-2
STATE AGENCIES
GROUNDWATER PROGRAMS

Name of Agency	Completed By	Description of Agency's Area's of Jurisdiction	Controlling Documents Statutes or Ordinances	Description of Activities Potentially Affecting GW	Names of Programs of Projects in Kitsap County	Responsible Office/Individual	Phone No.
STATE							
Department of Fisheries	Joe Robel	Preserves, protects, perpetuates and manages food fish and shellfish in state waters and off shore waters.	RCW 75	Regulatory authority under the Hydraulics Code	Regional Habitat Manager-Freshwater	Regional Habitat Manager-Freshwater: Joe Robel	753-5732 319-1718
	Regional Habitat Manager						
	Joseph E. Blum, Director						
Department of Parks and Recreation	Not Returned						753-5755
Department of Natural Resources (DNR)	Mike Briggs	Statewide Natural Resource Administration of Non-Federal Lands.	Revised Code of Washington	Surface Mining	State Land Management		753-5327
	Regional Manager		Washington Administration Code	Logging	Forest Practices Private Lands		
	Brian Boyle, Commissioner of Public Lands/Don These Forster			Wildfire	Wildfire Control		
				Slash Burning	Surface Mining		
				Chemical Vegetation Control			
Department of Health (DOH)	Eric Stegle, Chief Environmental Health	Public Health Protection	Revised Code of Washington	conducts or coordinates	Liquid Waste Program		753-7039
		Drinking Water Quality	Washington Administrative Code	water system plan review	Drinking Water Program		
		On-Site Sewage		well site approval	Well Site Approval		
			Rules and Regulations adopted by the State Board of Health	on-site sewage disposal			
	Not Returned			water quality monitoring and analysis for drinking water constituents			
			RCW 43.20A				
			Public Health Protection	enforces drinking water standards			
			Safe Drinking Water Act				
			RCW 70.119 - Public Water System Certification	investigates public health risks due to drinking water			

TABLE IV-2
STATE AGENCIES
GROUNDWATER PROGRAMS

Name of Agency	Completed by	Description of Agency's Area's of Jurisdiction	Controlling Documents Statutes or Ordinances	Description of Activities Potentially Affecting GWT	Names of Programs of Projects in Kitsap County	Responsible Office/Individual	Phone No.
STATE							
Department of Health (continued)			WAC 248-961 Gr-Site Sewage Disposal	contamination			
Department of Transportation (DOT)		All the state highway routes and right-of-way located in King County, including	RCW's for DOT right-of-way. If non-limited access, vested in the City as specified in RCW 47.24.	State Highway planning, location-design, construction and activities assoc. with roadway maintenance (incl. resurfacing; shoulder and ditch maint.); brush, tree and noxious weed control.	State Highway Maintenance		753-6005
Department of Wildlife Regional Manager/Isot Returned	Joan Keller, Regional Manager/ Isot Returned						753-5700
Northwest Air Pollution Control Authority (NWPCA)		Air pollution control	Washington Clean Air Act Federal Clean Air Act Ecology Admin. Codes - WAC 173-10000 MUPA Regulation	Regulatory agency, conducts air quality monitoring, new source permitting, handles citizen complaint, inspects industrial sources, and enforces air pollution regs.	None listed.		428-1617
Puget Sound Water Quality Authority (PSWA)	Joanne Richter State of the Sound Report	Puget Sound	Identical to the Department of Ecology	Water Quality Protection of Puget Sound	Assist in development of non-point source pollution action plan for Kitsap County Surface water monitoring Water quality protection recommendations		444-7320

TABLE IV-3
FEDERAL AGENCIES
GOVERNMENT PROGRAMS

Name of Agency	Completed by	Description of Agency's Area(s) of Jurisdiction	Controlling Documents, Statutes, or Ordinances	Description of Activities Potentially Affecting GI	Names of Programs or Projects in Kitsap County	Responsible Office/Individual	Phone No.
FEDERAL							
Environmental Protection Agency (EPA) Region 10 (5 surveys completed)	Robert Burd, Dir. of Hazardous Waste - Superfund and Generators	ICERCLA/SMA, Section 120	Report and Pending Workplan	Provide technical assistance to the State. Regulatory Agency, as well as research; Sludge Disposal, Treatment and monitoring programs.	Oversees for Remedial Investigation; Bub Loiselle		442-1847
	Chuck Findley, Dir.	Waste Disposal	Development & Pending RI/FS	Land Spreading			442-1941
	Gary O'Neil, Dir	Municipal Facilities	Clean Water Act as amended.	Land Spreading			442-0574
	Terice Divisioy	Pesticides	Fed. Insecticide, fungicide, and Rodenticide Act	Pesticide Registration			442-1369
	Robert Burd	Underground Storage Tanks	ICERCLA	Water Strategy			442-4132
		Safe Source Aquifer Program	Section 142(c) of the Safe Drinking Water Act	Water Strategy			
				Underground Storage Tanks			
				Pacific Northwest. Hazardous waste is divided into Superfund and hazardous waste.			
				Wellhead and Safe Source Aquifer programs are both under the Office of Groundwater.			
Farmer's Home Administration (FHA)		Single & Multi-Family Housing	F.D.A. rules and regulations	Construction of multi-family housing projects w/ parking lots and single-family w/ on-site sewage disposal.			878-3811
		Water & waste systems, community facilities, and rural business projects financed by Fed.					
US Geological Survey (USGS)		Collection, analysis, management of water resources data					593-0310
Squamish and Klallam Indian Tribes		Indian Reservation Lands					598-3311
							297-2666

TABLE IV-3
FEDERAL AGENCIES
GOVERNMENT PROGRAMS

Name of Agency	Completed By	Description of Agency's Area(s) of Jurisdiction	Controlling Documents, Statutes, or Ordinances	Description of Activities Potentially Affecting QW	Name of Program or Projects in Kitsap County	Responsible Office/Individual	Phone No.
FEDERAL							
Dept of Agriculture-USA	Ken Shanblin, State Director of Agr	Provide assistance to landowner and communities in municipal sludge application; (livestock, crops, irrigation); design and certify wildlife and animal waste ponds as shared with ASCS. Woodland assistance, etc.	16 USC/non-regulatory agency of the USDA.		Technical Assistance Soil Surveys Plant Materials Watershed Projects River Basin Surveys Resource Construction & Development Emergency Watershed Protection Resources Conservation Act Fish & Wildlife Conservation Woodland Conservation	Dept. of Agriculture Olympia, WA	753-5063
Soil Conservation Service (SCS)	Lyle Pitts			Federal cost sharing for construction of animal waste storage facilities, ponds, underground drains, shallow wildlife ponds on farms, thinning forestry stands, tree plantings, and erosion control.			753-9454
Agriculture/Stabilization and Soil Conservation (ASCS)		Administration of Federal farm/homestead Federal Register and agriculture programs	Regulations and Executive Orders		Agriculture Conservation Program ASCS Committee		753-9453
Corp of Engineers							
	W.P. Sellenwald, Chief	All activities in, under or over navigable waters of the US (Section 10)	Section 10 of Rivers and Harbors Act of 1899.	Regulatory jurisdiction over wetlands.	Regulatory Program Maintenance Dredging	Corps of Engineers Department of the Army Seattle District	764-6718
	Ray Fuoss, Chief	Discharge of dredge or fill materials in waters of US, including wetlands.	Section 404 of the Clean Water Act.		The Corps is responsible for all navigable waters including shorelines, as well as wetlands. The Corps handles construction and disposal of dredge material permits. Permits are handled through the regulatory branch.		

TABLE IV-5
LOCAL/STATE/FEDERAL
GROUNDWATER MANAGEMENT RESPONSIBILITIES

Category	Activity	Lead Agency	Support Agency	Controlling Documents	Projects or Programs
Air Pollution	:Standards	:EPA		:General Regulations for Air Pollution	
	:Standards	:INAPCA		:Source MAC 173-400	
	:Monitoring	:INAPCA		:Federal Clean Air Act	
	:Permitting	:INAPCA		:Washington Clean Air Act	
Agriculture (see Irrigation)				:Emission Standards MAC 173-490	
				:Open Burning MAC 173-425	
				:ASCS funding	
			:U.S. Department of Agriculture/SCS		
Aquifer Depletion/Overdraft (see Groundwater)					
	:Designation	:Ecology and EPA		:Section 1624(e) of SDWA	:Sole Source Aquifer Program
	:Permitting	:Ecology		:Water Rights - Ch. 90.14 RCW	
	:Permitting	:BCCMD		:Groundwater Management Areas and Programs - Ch 173-100 MAC	:Groundwater Management Plan
Commercial/Industrial Sites					
	:Site Plan Review	:KDCDD			
	:Fire Protection	:Cities			
Diking and Drainage	:Dredge and Fill	:Corp of Engineers			
Drinking Water Program	:Approval of Systems	:DOH			
	:Monitoring	:BCCMD			
Dredge Spoil Disposal	:Permitting	:Corp of Engineers			

TABLE IV-5 continued

Category	Activity	Lead Agency	Support Agency	Controlling Documents Statutes, or Ordinances	Projects or Programs	
Fire Protection		:Fire Districts		:ISO Standards, Uniform Fire Code		
		:Fire Marshall		:NEFA Standards, Water System		
				:Coordination Act, Fire Flow Regulation		
				:Ch 248-57 MAC		
Forestry Management Practices	:Mitigation	:DNR	:Soil Conservation :District	:RCV's and MAC's :Environmental Hearings Office :Ch 43-218 RCV		
			:Environmental Hearings :Office			
			:PSMA, Dept. of Wildlife			
			:Squamish and Kiallan			
			:Indian Tribes			
		:Monitoring	:EPA and Ecology	:BECMD	:CERCLA/SUBA Section 120	:Superfund
		:Clean-up	:EPA and Ecology		:Hazardous Waste Management	:Hazardous Waste Management
		:Permitting	:Ecology	:Env. Hearings Office	:Ch 70.105 RCV	:Regional District
	:Transporting	:Ecology	:DOT	:Dangerous Waste Regulations - :Ch 173-303 MAC		
Irrigation (see Water Rights)				:FIFRA		
				:TOSCA		
				:Minimum Functional Standards		
				:for Solid Waste Handling MAC 173-304		
		:Permitting	:Ecology			
Lagoons/Holding Ponds	:Design Approval	:BECMD	:Soil Conservation :Districts	:Soil Conservation Districts :Ch. 89.06 RCV	:SCD Manure Ponds/Wildlife Ponds	
		:DOH, Ecology				
Landfills (see Solid Waste)	:Permitting	:KCPW	:BECMD	:Minimum Functional Standards for :Solid Waste Handling MAC 173-304		
	:Monitoring	:Ecology	:Env. Hearings Office	:Hazardous Waste Management - :Ch 70.105 RCV		
				:Dangerous Waste Regulations - :Ch 173-303 MAC		
				:State Waste Discharge Permits - :MAC 173-216		
				:NPDES - MAC 173-220		

TABLE IV-5 continued

Category	Activity	Lead Agency	Support Agency	Controlling Documents Statutes, or Ordinances	Projects or Programs
Land Use Classification	:Zoning Changes	:KDCDD		:Kitsap County Comprehensive Plan	
	:Plan Amendments	:Cities		:Subarea Plans	
				:Zoning Codes	
				:Municipal Codes	
				:On-Site Sewage Disposal - MAC 248-95	:Liquid Waste Program
Liquid Waste (see Leakage and Sewage)	:Permitting	:BKCMB			
	:Monitoring	:Ecology			
		:DOH			
	:Site Approval	:DNR			:State Land Management
		:KDCDD			:Surface Mining
	:Standards	:EPA/Ecology	:DNR Extension	:Dangerous Waste Regulations MAC 173-303	:Pesticide Registration
	:Monitoring	:DNR	:BKCMB		:Pesticides in Groundwater Survey
	:Application	:Dept. of Agriculture			:Agricultural Chemicals in
:Disposal				:Groundwater Survey	
				:Agricultural Chemicals and	
				:Plant Services	
				:Chemical Vegetation Control	
Saltwater Intrusion		:Ecology	:USGS	:Protection of Withdrawal Facilities	
		:BKCMB		:Associated with Groundwater Rights -	
		:DON		:MAC 173-150	
On-Site Sewage Disposal	:Standards	:Ecology, DON	:EPA	:On-Site Sewage Disposal - MAC 248-96	:Liquid Waste Program
	:Permitting	:BKCMB			
	:Substantial	:County Council	:Env. Hearings Office	:Shoreline Management Ch. 90.5B RCW	
	:Dev. Permit	:Ecology	:DNR, Dept. of Wildlife		
	:Mitigation	:KDCDD			
	:Permitting	:BKCMB	:EPA	:Solid Waste Management RCW 70.95	:Solid Waste Program
	:Monitoring	:Ecology		:Minimum Functional Standards for	
				:Solid Waste Handling MAC 173-304	
			:Federal Clean Water Act		
			:Water Pollution Control Act -	:MPDES Program	
			:Ch 90.48 RCW		

TABLE IV-5 continued

Category	Activity	Lead Agency	Support Agency	Controlling Documents Statutes, or Ordinances	Projects or Programs
Soil Erosion Control	Permits	:DNR	:Dept. of Ag./ASCS :Conservation District		
			:Ecology, DOT, PSQA		
			:KDCD		
			:KCPU		
Solid Waste Handling	Permits	:KCPU	:EPA, Ecology	:State Waste Disposal Act of 1970	
	Operation			:Resource Conservation and Recovery Act	
	Monitoring			:Minimum Functional Standards for	
				:Solid Waste Handling - MAC 248-54	
Spill Control/Prevention		:Ecology	:EPA		
			:BKCHD		
Stormwater/Surface Runoff	Permit	:KCPU	:EPA, Dept. of Agric., :Corp of Engineers,	:Water Pollution Control Act - :Ch. 90.48 RCW	
		:Ecology	:PSQA, DOT, Fisheries	:Pollution Discharge Act -	
			:Env. Hearings Office	:Ch 90.32 RCW	
			:Dept. of Ag./ASCS	:King County Ordinance 7590	
				:King Count Code 9.8	
Transportation Corridors		:DOT		:King County Code - Chs. 12, 14, 17, 19	
		:KDCD		:RCW 70.95	
		:KCPU		:RCW 36	
Underground Pipelines	Franchise Permits	:Ecology	:EFSEC		
Underground Storage Tanks	Permitting	:Ecology, EPA	:Env. Hearings Office	:RCWA	
	Monitoring		:BKCHD	:Water Pollution Control Act -	
				:Ch. 90.48 RCW	
				:Hazardous Waste Management -	
				:Ch 70.105 RCW	
Water Pollution	NPDES	:Ecology	:EPA	:Water Pollution Control Act -	
	Permitting	:BKCHD	:DOW	:Ch. 90.48 RCW	
	Monitoring			:Safe Drinking Water Act	
				:Clean Water Act	
				:State Toxic Substances Act	

TABLE IV-5 continued

Category	Activity	Lead Agency	Support Agency	Controlling Documents Statutes, or Ordinances	Projects or Programs
Wastewater Treatment/Disposal	Approvals	:BKCND	:EPA	:Dangerous Waste Regulations -	
	Monitoring	:Ecology	:Env. Hearings Office	: MAC 173-303	
				:National Pollutant Discharge Elimination:	
				: System Permit Program - MAC 173-220	
				:Minimum Functional Standards for	
				: Solid Waste Handling - MAC 173-304	
Water Resources	Groundwater	:Ecology, BKCND	:USGS, KCCDD, KCPW	:Regulation of Public Ground Water -	
	Surface Water/ Streams/Lakes	:Ecology, KCCDD	:Fisheries, DNR, PSDQA,	: Ch 90.44 RCW	
	Wetlands	:Ecology, KCCDD	:EPA, Wildlife, USDA/SCS	:Water Resources Act Ch 90.34 RCW	
			:Squamish and Klallam		
			: Indian Tribes		
Water Rights	Application	:Ecology	:DOW, BKCND	:Water Rights Ch 90.14 RCW	
	Permits			:Protection of Withdrawal Facilities	
	Certificates			: Associated with Groundwater	
				: Rights MAC 173-150	
Wells	Abandoned Wells	:Ecology	:EPA, BKCND	:Water Well Construction Ch 18.104 RCW	
	Construction Stds.	:Ecology	:EPA, BKCND	:Protection of Upper Aquifer Zones -	
	Injection Wells	:Ecology	:EPA, BKCND	: Ch. 173-154 MAC	
	Permits/Siting	:DOW, BKCND	:Ecology	:Minimum Standards for Construction and	
				: Maintenance of Wells - Ch 173-160 MAC	
				:Regulation and Licensing of Water	
			: Well Contractors and Operators		
			: Ch 173-162 MAC		

TABLE IV-6
STATE AGENCIES
GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	STATE										
	Dept of Conservation	Energy	Environ	Dept of Ecology	Dept of Fisheries	Dept of Health	Dept of Labor	Dept of Natural Resources	Dept of Transportation	Dept of Wildlife	PSUDA
Air Pollution											
Agriculture (see Irrigation)	L										S
Aquifer Depletion/Overdraft				L				S			
Commercial/Industrial Sites											
Diking and Drainage											
Drinking Water Program											
Dredge Spoil Disposal											
Energy Generation/Transmission											
Fire Protection											
Forestry Management/Practices	S										S
Gravel Pits											
Hazardous Waste Management											
Irrigation											
Leopards/Holding Ponds											

TABLE IV-6
STATE AGENCIES
GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	STATE									
	Dept of Energy	Conserva	Environ	Dept of	Dept of	DIR	DOI	Transport	Dept of	PSMA
Lead Agency (3)	Agri/ASCS	Commissio	HEARINGS	ECOLOG	Fishes/Park&Rec				Life	
Support Agency (4)										
Landfills (see Solid Waste)			S	L						
Land Use Classification										
Liquid Waste (see Lagoons)			S	L						
Mining Operations						L				
Pesticides/Herbicides	L			S		S				
Seawater Intrusion				L			S			
Sewage Waste Disposal				L			L			
Shorelands			S	L	S				S	
Sludge Application				S/L						
Soil Erosion Control	S			S		S		S		S
Spill Control/Prevention				L						
Solid Waste Handling				L						
Stormwater/Surface Runoff	S		S	L	S		S			S
Transportation Corridors									L	

TABLE IV-6
STATE AGENCIES
GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	STATE										
	Dept of Conservation	Energy	Environ	Dept of	Dept of	DNR	DOH	Transport	Wildlife	MARPCA	PSOQA
Underground Pipelines		S		L							
Underground Storage Tanks			S	L							
Wastewater Treatment/Disposal			S	L							
Water Pollution				L			S				S
Water Resources											
Groundwater				L			S				
Surface Water/Streams/Lakes				L	S		S		S		S
Wetlands				L	S		S		S		
Wells/Water Rights				L			L				
Other (Not Listed Above)											

TABLE IV-7
 FEDERAL AGENCIES
 GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	Dept of	Corp of	EPA	FmHA	SCS	USGS	Susquaham and Klallam Indian Tribes
Air Pollution			L				
Agriculture (see Irrigation)	S			S	S		
Aquifer Depletion/Overdraft			S			S	
Commercial/Industrial Sites							
Diking and Drainage		L			S		
Drinking Water Program			L/S				
Dredge Spoil Disposal		L					
Energy Generation/Transmission							
Fire Protection							
Forestry Management/Practices					S		S
Gravel Pits							
Hazardous Waste Management			L/S				
Irrigation							
Lagoons/Holding Ponds			S		S		

TABLE IV-7
 FEDERAL AGENCIES
 GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	FEDERAL									
	Dept of	Corp of	EPA	FedHA	SCS	USGS	Suquamish and			
	Agril	Engineers					Klallan			
							Indian Tribes			
Landfills (see Solid Waste)			L/S							
Land Use Classification										
Liquid Waste (see Lagoons)			L/S							
Mining Operations										
Pesticides/Herbicides	L/S		L/S		L/S					
Seawater Intrusion						S				
Sewage Waste Disposal			S/L							
Shorelands							S			
Sludge Application			S							
Soil Erosion Control					L/S					
Spill Control/Prevention			S							
Solid Waste Handling			S							
Stormwater/Surface Runoff			S				S			
Transportation Corridors										

TABLE IV-7
 FEDERAL AGENCIES
 GROUNDWATER RESPONSIBILITY MATRIX

CATEGORIES (1)	Dept of : Corp of :	EPA :	FmHA :	SCS :	USGS :	Suquamish and Klallam Indian Tribes :
L = Lead Agency (3)						
S = Support Agency (4)						
Underground Pipelines						
Underground Storage Tanks		L				
Wastewater Treatment/Disposal		S/L				
Water Pollution		L				
Water Resources						
Groundwater		S			S	S
Surface Water/Streams/Lakes		S		S	S	S
Wetlands		L		S	S	S
Wells/Water Rights		S				
Other (Not Listed Above)						

TABLE IV-8

KITSAP COUNTY
GROUND WATER MANAGEMENT PLAN

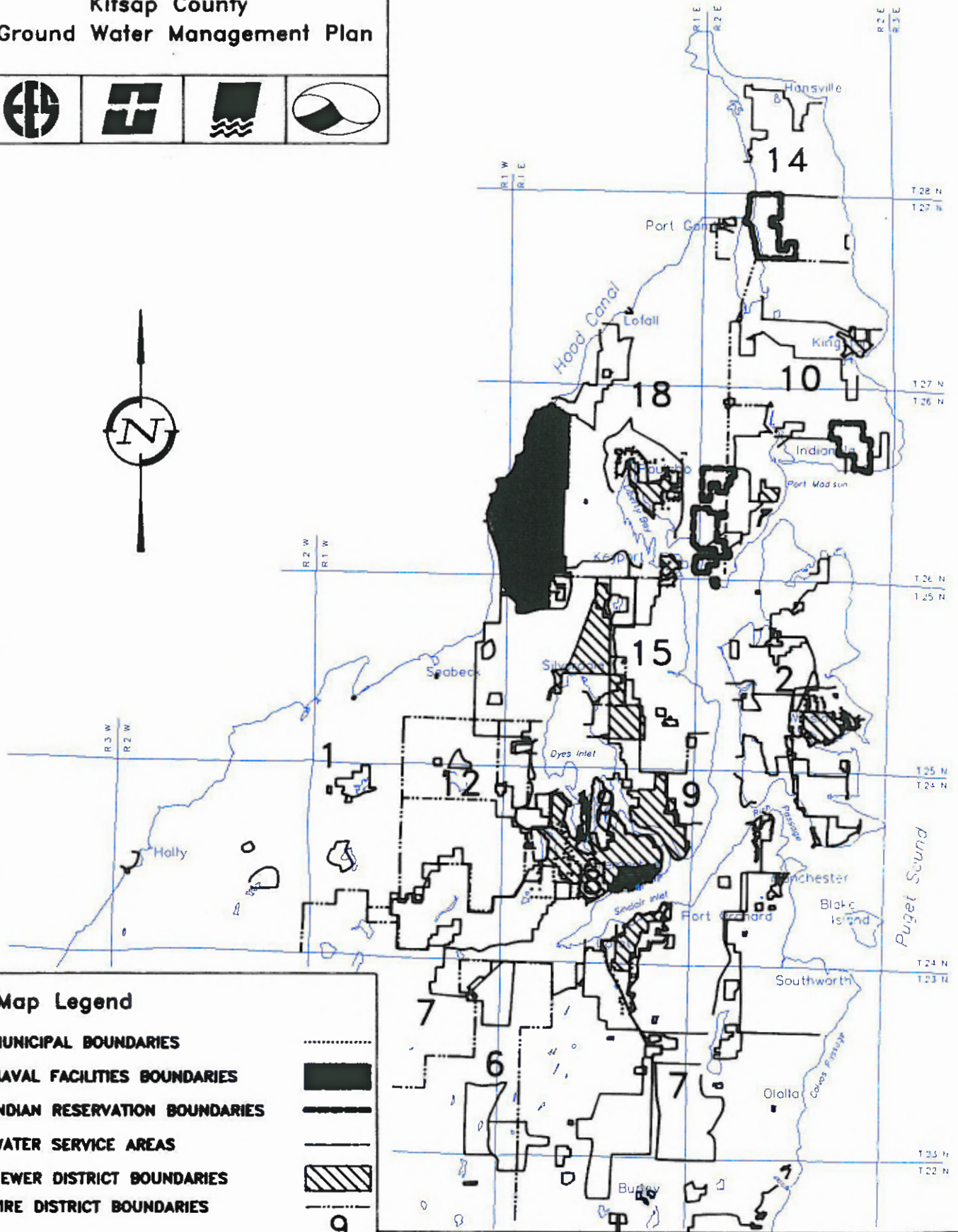
GROUNDWATER MANAGEMENT ISSUES (1)

- o Education Programs in Schools
- o Landfills and Hazardous Waste Dumping Practices
- o Fertilization and Herbicide/Pesticide Practices
- o Salt Water Intrusion
- o Wetlands Preservation
- o Water Use and Conservation Practices
- o Stormwater Runoff and Improved Erosion Control
- o Wastewater Irrigation
- o Reduced Recharge from Development
- o Well Drilling Activities in Recharge Areas
- o Well Abandonment Procedures
- o Inadequate Aquifer Recharge Protection Measures
- o Adequate Protection for Shallow Aquifers
- o Protection of Existing Wells From New Well Development
- o "Mining" Aquifers
- o Overdevelopment of Aquifers
- o Water System Expansion without Adequate Resources
- o Coordinated Water Resource Management

Note:

- (1) Issues provided by citizen input at GWAC Groundwater Fair and Committee meetings.

Kitsap County Ground Water Management Plan



Map Legend

MUNICIPAL BOUNDARIES

NAVAL FACILITIES BOUNDARIES

INDIAN RESERVATION BOUNDARIES

WATER SERVICE AREAS

SEWER DISTRICT BOUNDARIES

FIRE DISTRICT BOUNDARIES



9

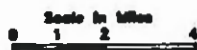


EXHIBIT IV-1

JURISDICTIONAL BOUNDARIES FOR KITSAP COUNTY GWMP