US EPA RECORDS CENTER REGION 5
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MINNESOTA DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

REQUEST FOR PROPOSALS

To Study, Evaluate, and Prepare a Cost Analysis and Plan for the Remedy of Groundwater Contamination Resulting from Discharge of Industrial Chemicals at the Site of a Former Creosote Works,
St. Louis Park
Hennepin County, Minnesota

November 20, 1979

Notice to Consultants

This request for proposals is submitted for review and consideration by firms engaged in providing consultant services. Should you wish to be considered for award of a contract to carry out and complete this study, please inform the Minnesota Department of Health of your interest. An informational meeting will be held to provide more detailed information needed by the firms and to define the required work and capabilities needed. Interested firms will then submit detailed proposals. State contracts shall be awarded in accordance with Minnesota Statutes, Chapters 15 and 16.

The Minnesota Department of Health solicits a study containing an evaluation of and recommendations for the design of a variety of methods which might be used to reduce or eliminate creosote which is contaminating groundwater in the area of St. Louis Park, Minnesota. The study shall propose a variety of remedial actions but will not include actual working plans.

I. INTRODUCTION

The long-term discharge of coal-tar distillates, creosote and possibly other wood treating products may in time seriously contaminate the major groundwater aquifers of the Twin Cities' metropolitan area. This area has a population of approximately two million persons or about one half of the State's population. Many of the communities rely on groundwater for a water supply. Minneapolis and St. Paul, although presently served primarily by the Mississippi River, may in future periods of low flow, increase their dependence on groundwater. Although legal action has been brought by the State against the polluter, the ultimate solution may not lie in the courts because of the time involved to resolve the issue and/or the financial limitations of the defendants. Ultimately the public may be required to bear, in whole or in part, the cost of rehabilitating the affected aquifers.

Several studies have already been conducted regarding the contamination problem. In addition, the United States Geological Survey is currently conducting geohydrological studies of the area which are designed to define more clearly the nature of and magnitude of the contamination. The U.S. Geological Survey is preparing a report which contains the results of its activities to date in the following areas:

1. Compile all available information from State and Federal agency files and previous reports on geohydrology of the Reilly Tar and Chemical plant site and areas potentially contaminated by migration of creosote products off this site. The entire study area is referred to as the "site."

2. Locate all public and private wells on the site identified in (1) to which access can be obtained, verify well construction and stratigraphy by geophysical logging, measure vertical flow in wells, and identify wells that should be abandoned or reconstructed as observation wells to prevent further contamination of bedrock aquifers, and submitted in a report to the Department of Health.

3. Prepare maps and tables showing areal distribution, thickness, and geologic structure of aquifers and confining beds; 3-D distribution of head and hydraulic characteristics in all units; location, type, and strength of all hydrologic stress points (such as wells) and system boundaries; and the distribution and concentration of contaminants.

4. Collect samples of soil materials and fluids and perform qualitative and quantitative characterization of organic compounds. Such samples will be representative of soil and contamination conditions on the site as defined in (1) above.

5. Include a qualitative and quantitative analysis of specific organic compounds, selected samples of soil materials and fluids collected under (4) above.

6. Conduct column experiments on soils and soil combinations such that the experiments are representative of conditions on the site as defined in (1) above to determine the mobility of fluids in such soils.

In addition, the U.S. Geological Survey is developing a three-dimensional diffusion-dispersion mass transport chemical water model which will be useful in testing a number of variables which affect the rate and distance of the movement of contaminants in soils in the St. Louis Park area. This model will be available for use by the consultant.

Appended to this Request for Proposals is a summary of the nature and magnitude of the problem as determined by the Minnesota Department of Health, the Minnesota Pollution Control Agency, and their consultant (Barr Engineering) and the Minnesota Geological Survey.

Copies of studies done to date may be requested from the Minnesota Department of Health.

II. OBJECTIVES

The objective of the study is to provide the technical and economic information necessary to design and implement a remedial program to eliminate the chemical contamination of the groundwater in the area of St. Louis Park as much as possible.

III. PROJECT TASKS

The consultant shall study and evaluate the cost effectiveness of a gradient control well system, methods for excavation of the more heavily contaminated soil, and a program of treatment and disposal of the discharge water from the gradient control wells and the contaminated soil wastes.

Gradient control wells (barrier wells) may be considered the most readily available and cost-effective method for removal of contaminated water in the area below and adjacent to the site and for minimizing further migration of contaminants from the site. The effectiveness of a gradient control system may be difficult to determine because of the complex hydrologies of the glacial drift aquifers and the underlying carbonate aquifer, which contains fractures and solution cavities. Deeper sedimentary bedrock formations, consisting of 1,000 feet of dolomites, sandstones, siltstones, and shales, are penetrated by numerous wells. Hydrostatic pressures are different in most of the bedrock aquifers, resulting in some inter-aquifer exchange through abandoned or poorly constructed wells. Generally, the upper aquifers have higher static pressures than the underlying units, causing a net movement of contaminated water into the lower aquifers. Presently, open-hole or improperly grouted multiple-aquifer wells that can be located are being properly plugged. It is not likely that all wells will be located. Under these circumstances, a gradient control system may not completely contain the horizontal and vertical spread of contamination. Direct excavation of the severely contaminated material may be necessary to minimize source strength.

1. Evaluation of Gradient Well System: Various combinations of gradient control wells shall be evaluated to see which combinations can best control water movement in all contaminated aquifers and those subject to contamination. The proposed system should include, but not be limited to all of the following:

- the placement and utilization of test wells to determine the necessary hydrologic and hydraulic parameters to design an effective barrier well system if the present data are sufficient;

- location, depth, method of construction, discharge rates, extent of effective control, and total estimated costs for each proposed barrier well;

- an analysis of the cost effectiveness of intercepting contaminated water which has left the site;

- estimates of the water quality of the discharge of each barrier well;

- estimates of the water quantity of the discharge of each barrier well;

- estimates of operating costs, excluding water treatment, for the proposed barrier well system;

- an analysis of the effects of the barrier well system on land use, including an assessment of any subsidence problems:

- a determination of other water use controls which may have to be implemented to make the final design work;

- an estimate of the confidence the consultant has that the final design will provide the desired degree of control;

- an analysis of any effects excavation will have on the effectiveness of the proposed barrier well system.

The consultant is expected to participate in the refinement of a dispersion-diffusion model, which would then be used to predict the effectiveness of the proposed design for removal of the contaminated water.

2. Treatment of Gradient Well Discharge: A system for treatment of the water pumped by the gradient control wells should be proposed, using the information generated in the proposed gradient control system. The proposed system shall include, at a minimum, the following:

- costs for construction and implementation of each of a variety of different methods of treatment and ultimate disposal of the effluents;

- an estimate of the performance which may be expected from individual control units;

- a comparison of costs required to remove contaminants to different levels.

3. Excavation: Based upon available data regarding levels and distribution of soil contaminants and the geology and hydrogeology of the site and adjacent area, the consultant will estimate the volume of contaminated material and prescribe procedures for excavation. Methods of treatment of the excavated material shall also be investigated (i.e., landfill, incineration, land spreading, etc.). This portion of the study shall include, but not be limited to, the following:

- alternative methods for treatment to various levels of contamination and/or disposal of the contaminated soils;

- estimated costs associated with each method, including any storage, transportation, and ultimate disposal costs;

- an analysis of all environmental consequences of such methods. These should include any effects of on-site treatment; effects at any other treatment or disposal site(s); impacts on land use, transportation, underground and aboveground utilities in the excavated area; and the possible need for an Environmental Impact Statement or any permits.

4. Additional Considerations: The consultant would be expected to review all the existing data concerning the site. This information may provide the basis for investigating work and preliminary remedial actions. Further work would be pursued once the U.S. Geological Survey study and the dispersion-diffusion model are sufficiently refined.

The consultant will review the literature in order to assist the Minnesota Department of Health in setting guidelines for acceptable levels of contamination for soil and water.

When most of the basic data become available, the consultant will estimate the relative effectiveness of different combinations of barrier wells, treatment systems, and/or excavation programs. These estimates will be used to evaluate the cost-effectiveness of each proposed plan, and the consultant will make recommendations, indicating the most appropriate plan of action which can be taken to protect the drinking water supply of the area and to reduce the extent and intensity of contamination as much as possible.

IV. GENERAL STATEMENT OF WORK

Upon acceptance of the contract and completion of preliminary investigations, the consultant shall submit a preliminary report that would include:

1. a detailed work plan containing a schedule of activity;

2. a schedule of dates at which the consultant will report to the Minnesota Department of Health concerning the progress of the study;

3. an evaluation of existing information, outlining the adequacy of the information. Any additional information that is required through new data gathering efforts should be explained in detail.

Throughout the course of the study, the consultant is expected to interact closely with the Minnesota Department of Health staff and others involved in this problem from interested governmental, academic, and appropriately involved organizations. The consultant may be asked to participate in public meetings and provide testimony at public and legislative hearings.

A final report prepared by the consultant shall be submitted by June 30, 1981. The report should address all the aspects discussed in the "Project Tasks" section of the report.

V. PREPARATION OF PROPOSALS

Proposals should present information concerning the following:

1. Description of the firm(s) involved including:
   a. Overall capabilities;
   b. Brief history of the firm;
   c. Overall organizational structure of the firm, including location of offices and facilities;
   d. Previous experience in evaluating groundwater hydrology and contamination, providing at least the following for each project:
      i. name of project,
      ii. type of project,
      iii. firm's role in project,
      iv. name of client,
      v. approximate total cost of study,
      vi. approximate cost of consultant's contract,
      vii. type of services rendered;
   e. Previous experience, if any, in groundwater contamination studies specifically related to creosote contamination of soil and groundwater;
   f. Sample of typical invoice for comparable project and/or listing of information contained on invoice;
   g. Multiplier used for determining rates with a breakdown of overhead and profit;
   h. Summary of firm(s)' total staff capabilities (i.e., a standard form 254, (July 1975) prescribed by GSA Federal Procedures Regulation 41 CFR 1-16.803).

2. Description of staff available for the project including:
   a. Resumes;
   b. Hourly rates of each staff person;
   c. Organizational chart of management and professional staff.

3. Cost estimates of person-hours expended for tasks listed in the "Statement of Work." In addition, costs of the following should be estimated:
   a. Administration;
   b. Travel;
   c. Other direct charges.

4. Assumptions made in estimating costs under #3 above.

5. Time frames estimated for each item listed in the "Statement of Work."

6. A brief outline of the draft report.

7. A copy of a typical groundwater hydrology and contamination document prepared by the firm(s), if available.

8. References - names, addresses, and telephone numbers of former and/or current clients whom the the Minnesota Department of Health may contact.

9. An indication of any previous or ongoing work being performed by the firm(s) or their subsidiaries for the proposers or the State of Minnesota.

10. An explanation of how the firm(s) will be available locally to interface with the Minnesota Department of Health and others (i.e., local office, frequency of visits, etc.).

11. Summary of why the firm feels qualified to perform the work indicated.

12. Other pertinent information.

Please submit five (5) copies of your proposal by 4:30 p.m., December 28, 1979 to:

Edwin H. Ross, Supervisor
Ground Water Quality Control Unit
Minnesota Department of Health
717 Delaware Street S.E.
Minneapolis, Minnesota 55440

Questions regarding this proposal should be directed to Mr. Ross at 612/296-5338. The Minnesota Department of Health retains the right to reject late proposals. The contract award shall be based primarily on technical approach, experience, and competency in the requisite fields and costs. All contracts must be approved by the Minnesota Department of Administration, the Minnesota Department of Finance, the Minnesota Attorney General's Office, and the Minnesota Commissioner of Health.

Proposals are to be sealed in mailing envelopes or packages with the responser's name and address clearly written on the outside. Each copy of the proposal must be signed by an authorized member of the firm. Prices and terms of the proposal as stated must be valid for the length of the project.

VI. PROJECT COSTS

The Department has estimated that the cost of this project should not exceed $120,000.00 for professional services and expenses.

VII. EVALUATION OF PROPOSALS

All proposals received by the deadline will be evaluated by a technical advisory committee consisting of representatives of the Minnesota Department of Health, the Minnesota Pollution Control Agency, the Minnesota Department of Natural

Resources, the United States Geological Survey, and the City of St. Louis Park, during January 1980. A number of proposals will be selected during this time.

During February, 1980, the technical advisory committee will interview the selected firms to clarify any problem areas. By March 1, 1980, the technical advisory committee will submit its recommendations concerning the proposals to the Department of Health. The Department of Health will make the final selection of a consultant and notify the consultant by March 15, 1980.

VIII. PROJECT COMPLETION DATE

The project will be completed and the report submitted by June 30, 1981. The consultant should submit one (1) copy suitable to be photographed and two (2) additional copies.

Firms Bidding

Soil Testing

Barr

Hickock

CH2M

CED

Wooton

Camp, Dresser & McGee

OSM

Donahue

NUS