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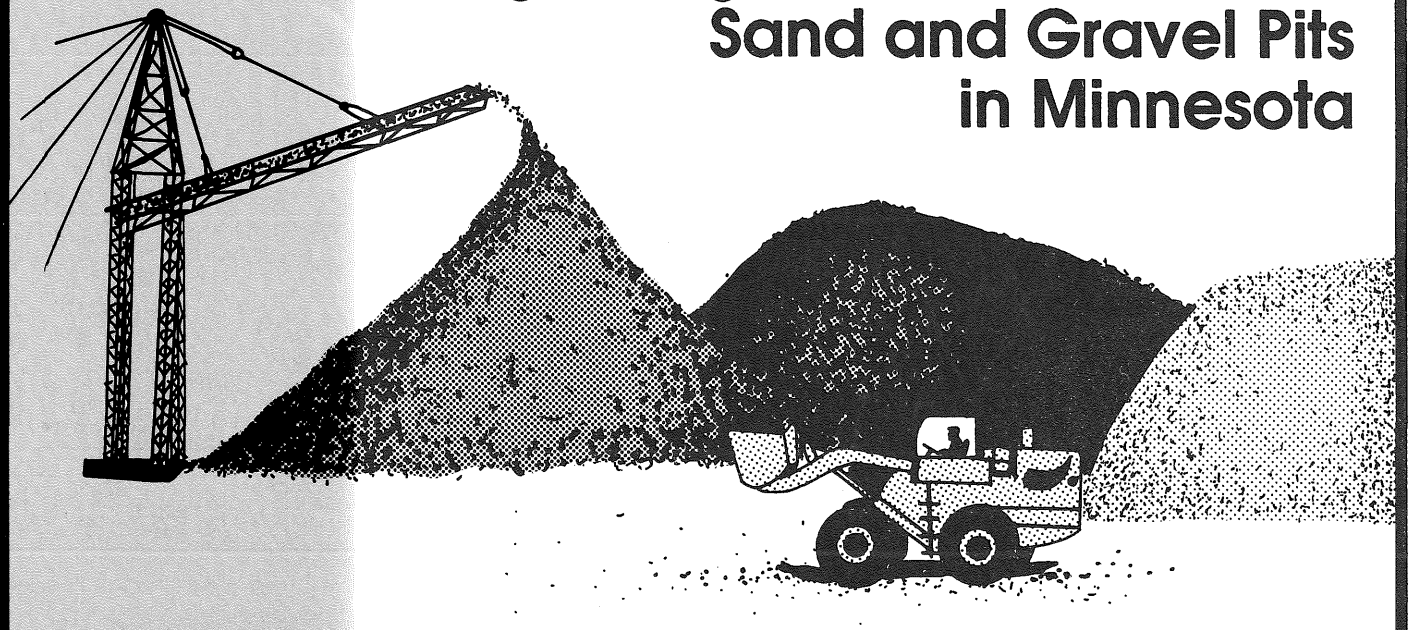
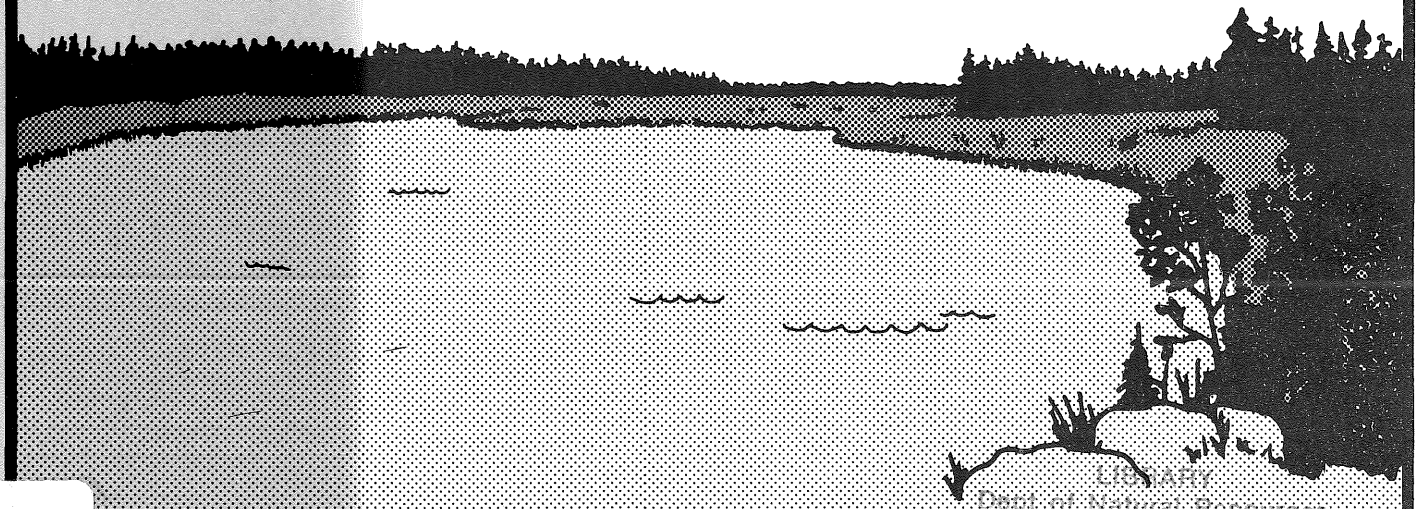
A Review of Regulations Regarding the Reclamation of Sand and Gravel Pits in Minnesota



Report by the Task Force on Sand and Gravel Pit Reclamation to the Governor January, 1989



Minnesota Department of Natural Resources

A Review of Regulations Regarding the Reclamation of Sand and Gravel Pits in Minnesota

Report to the Governor by the Task Force on Sand and Gravel Pit Reclamation

Minnesota Department of Natural Resources
Division of Minerals
500 Lafayette Road
St. Paul, Minnesota 55155-4045
Telephone: 612/296-4807

January 1989

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
500 LAFAYETTE ROAD, ST. PAUL, MINNESOTA 55155-4037

OFFICE OF THE
COMMISSIONER

DNR INFORMATION
(612) 296-6157

December 30, 1988

The Honorable Rudy Perpich
Governor of Minnesota
Room 130, State Capitol Building
Aurora Avenue
St. Paul, MN 55155

Re: December Progress Report: Sand & Gravel Task Force

Dear Governor Perpich:

The last meeting of the Sand & Gravel Task Force was held on December 6, 1988 at the State Capitol Building in St. Paul. Minutes for that meeting are attached. At the meeting, the Task Force concluded a discussion on recommendations for the final report. The Task Force recommendations are also attached for your information.

A last draft of the task force report has been prepared and distributed to Task Force members for a final review. This report, dated December 30, 1988, is enclosed. We anticipate that the final report will be completed by the end of January 1989.

Thank you for your continued interest in sand and gravel pit restoration. As always, we look forward to any comments you may have regarding the draft report or recommendations.

Sincerely,

Joseph N. Alexander
Commissioner

EXECUTIVE SUMMARY

Directive

In November 1987, the Governor directed the Commissioner of Natural Resources to convene a task force:

- to review existing programs, rules, and laws relating to the restoration of sand and gravel pits in Minnesota, and
- to recommend how best to achieve and implement a more comprehensive statewide plan.

The Governor further directed the task force, through additional correspondence, to address illegal dumping in sand and gravel pits.

Task Force Membership

The task force membership is composed of representatives from the Department of Natural Resources, Department of Transportation, State Planning Agency, Department of Trade and Economic Development, Iron Range Resources and Rehabilitation Board, Pollution Control Agency, Minnesota Legislature, county officials, and the sand and gravel industry.

Activities

The task force convened in January 1988. Nine meetings were held. Field trips were conducted in outstate Minnesota and in the metropolitan area to observe sand and gravel pit reclamation and to gather input from local regulatory officials on the adequacy of existing rules. A survey soliciting information on local regulation of sand and gravel pits was distributed to all counties. Another survey was distributed to 47 states to gain insight on how sand and gravel is regulated at a national level.

Recommendations

1) Authority for the regulation of sand and gravel pits in Minnesota is currently held by local units of government. The task force believes that state regulation of sand and gravel pit reclamation is unnecesary at this time but that local units of government should be encouraged to make reclamation a higher priority through their current regulatory system.

2) There is a need for basic information on sand and gravel pit reclamation by industry, local units of government, and public agencies that operate sand and gravel pits. The task force recommends that a library be developed and summarized in the form of a technical manual on sand and gravel pit reclamation. The manual would be distributed for voluntary use by industry, local units of government, and public agencies that operate sand and gravel pits. The task force also recommends that various means of implementing the information in the technical manual (such as model ordinances) be evaluated.

3) Abandoned sand and gravel pits were identified in the county survey as a concern. The task force recommends the establishment of a matching grant program for the reclamation of abandoned pits by local units of government. Such a program would include the identification of funding sources and the development of qualifying criteria.

4) To accomplish the recommendations outlined above, the task force recommends that funding be sought in the 1989 legislative session for a two-year biennial project. The Department of Natural Resources (DNR) will be designated as the project manager. The Minerals Coordinating Committee will appoint a reclamation subcommittee from the existing Industrial Minerals Advisory Committee to serve in an advisory capacity to the DNR.

Project objectives:

- development of a library and the preparation of a technical manual on sand and gravel pit reclamation;
- distribution of technical information to industry, local units of government, and public agencies that operate sand and gravel pits;

- evaluation and recommendation of means by which technical information on reclamation could be used by local units of government and public agencies that operate sand and gravel pits; and
- development of a matching grant program for funding of reclamation projects in abandoned sand and gravel pits.

5) The task force recognizes that the regulation and reclamation of sand and gravel pits through local zoning ordinances reduces the attractiveness of these sites for illegal dumping. The task force endorses more aggressive enforcement of existing laws prohibiting dumping; comprehensive solid waste and recycling legislation; programs such as Clean Sweep and Household Hazardous Waste Collection; and education and public awareness programs at the local level.

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1. INTRODUCTION

Directive

In November 1987, the Governor directed the Commissioner of Natural Resources to convene a task force to:

1) review existing programs, rules, and laws relating to the restoration of sand and gravel pits, and
2) recommend how best to achieve and implement a more comprehensive statewide plan.

The task force membership includes representatives from the Department of Natural Resources (DNR), Department of Transportation (Mn/DOT), State Planning Agency (SPA), Department of Trade and Economic Development (DTED), Iron Range Resources & Rehabilitation Board (IRRRB), Pollution Control Agency (MPCA), Minnesota Legislature, county officials, and the sand and gravel industry.

Throughout the duration of the task force, other organizations have sent representatives to task force meetings. Those who have attended a minimum of three meetings are regarded as task force members (see Table 1). The task force also maintains a list of interested parties (see Table 2). These are people who have an interest in sand and gravel or who have attended less than three task force meetings. Interested parties receive copies of the monthly progress reports, meeting minutes, and notices.

Activities

The task force convened in January 1988. Nine meetings were held throughout the year. Field trips were conducted in outstate Minnesota and in the metropolitan area to observe sand and gravel pit reclamation and to gather input from local regulatory officials on the adequacy of existing rules. A survey soliciting information on local regulation of sand and gravel pits was distributed to all counties. Another survey was distributed to 47 states to gain insight on how sand and gravel is regulated at a national level.

Scope of Report

The subject of this report is the review and evaluation of programs, rules, and laws relating to the reclamation of pits used in the extraction of sand and gravel. Additional correspondence from the Governor's Office in August 1988 identified illegal dumping in sand and gravel pits as one of the Governor's concerns. Illegal dumping in sand and gravel pits is also covered in this report as a secondary topic.

Sand and gravel is a surficial geologic deposit of unconsolidated material that is mined using shovels, loaders, trucks, and other similar equipment. This report does not consider reclamation associated with the production of crushed stone. Crushed stone is produced from rock that is extracted from a quarry. Crushed stone, like sand and gravel, is often used as a source of aggregate. However, the mining methods vary as does the final feature on the landscape which is often a deep and straight-sided quarry that generally fills with water at the cessation of mining. Similarly, the report does not consider industrial sand or dimension stone quarries.

The task force report represents a consensus among all the special interests on the task force. It is based upon:

1) discussions at task force meetings (meeting minutes are contained in Appendix A);
2) observations made during field trips;
3) discussions with county zoning adminstrators, county engineers, and operators (task force activities are summarized in Appendix B); and
4) survey results and other data collected by the task force.

The DNR, as secretary to the task force, conducted the surveys, collected additional information, and compiled the report.

Related Reports

Several recent reports on sand and gravel may be of interest to the reader. In 1979, the Department of Natural Resources prepared a report on the status of the Minnesota aggregate industry in response to numerous inquiries and as part of its on-going responsiblility to manage state-owned metallic and non-metallic resources. The report, entitled "Industrial Minerals in Minnesota: A Status Report on Sand, Gravel, and Crushed Rock" discussed: 1) the geologic formation of sand and gravel deposits in the state, 2) the size of industry, 3) environmental and land use concerns, and 4) existing governmental programs.[1]

In 1985, the 15 member Advisory Committee on Aggregate Resources for the Seven-county Metropolitan Area submitted its final report to the Minnesota Legislature. The report considered several aspects of aggregate resource protection including: 1) sufficiency of existing information, 2) the need to protect, and 3) methods of protection.[2]

[1] Industrial Minerals in Minnesota: A Status Report on Sand, Gravel, and Crushed Rock. September 1979. Minnesota Department of Natural Resources, Division of Minerals. 75 pp.

[2] Protecting Aggregate Resources in the Twin City Metropolitan Area: Report of the Aggregate Resources Advisory Committee to the Minnesota Legislature. November 1985. Metropolitan Council of the Twin Cities Area. 55 pp.

TABLE 1. SAND AND GRAVEL TASK FORCE MEMBERS

ORGANIZATION	TASK FORCE MEMBER
Aggregate Ready Mix Association	Gary Botzek
Oscar Roberts Concrete Products Company	Dick Smith
Granite City Ready Mix, Inc.	Bob Bogard
Stommes Construction Company	John Stommes
J. L. Shiely Company	Linda Schutz
J. L. Shiely Company	Ray Lappegaard
Barton Sand & Gravel Company	Sue Turner
Minnesota Senate	Senator Robert Schmitz
Minnesota House of Representatives	Julian Empson
Department of Natural Resources	Cindy Buttleman - Minerals Division
Department of Natural Resources	Paul Pojar - Minerals Division
Department of Natural Resources	Ray Nyberg - Waters Division
Department of Natural Resources	Dick Rossman - Forestry Division
Department of Transportation	Emmett Duffy
Department of Transportation	Warren Pladsen
Pollution Control Agency	Mike Convery
Dept. of Trade & Economic Development	Frank Ongaro
State Planning Agency	George Durfee
Iron Range Resources & Rehabilitation Board	Orlyn Olson
County Zoning Administrator's Association	Bob Lockyear - Washington County
County Engineer's Association	Dave Heyer - Becker County
County Representative	Joe Varda - St. Louis County
County Representative	Terry Bovee - Le Sueur County
County Representative	Jeff Knapp - Wright County

TABLE 2. INTERESTED PARTIES

ORGANIZATION	INTERESTED PARTY
Mn Asphalt Pavement Association	Dave Holt
Mn Asphalt Pavement Association	Ken Paulson
Meridian Aggregates Company	Don Vry
Concrete Pavers Association of Minnesota	Dan Frentress
Crystal Construction Company	Bill Crystal
Richard Schuh Construction Company	Richard Schuh
Consultant	Rudy Hoagberg
Chair of Taxes and Tax Law Committee	Senator Doug Johnson
University of Minnesota - Crookston	Dan Svedarsky
Department of Natural Resources	Arlo Knoll
Department of Natural Resources	Carrol Henderson
Department of Natural Resources	Julie Jordan
Department of Natural Resources	J. D. Lehr
Department of Natural Resources	Dave Olson
Department of Natural Resources	Memos Katsoulis
Department of Natural Resources	Ray Norrgard
Department of Natural Resources, retired	Morris Eng
Pollution Control Agency	Gretchen Sabel
Pollution Control Agency	John Brach
Pollution Control Agency	Jim Strudell
Association of Minnesota Counties	Peggy Addicks
Association of Minnesota Counties	Dave Weirens
Wright County Zoning Administrator	Tom Salkowski
Sherburne County Zoning Administrator	Brian Benson
Le Sueur County Zoning Administrator	Art Poll
Benton County Zoning Administrator	Al Barthelemy
St. Louis County Planning	Jim Laulunen
Steele County Planning	Scott Goldberg
Stearns County Engineer	Doug Weiszhaar
Benton County Engineer	Dennis Carlson
Pennington County Engineer	Tom Kozojed
Marshall County Soil Survey	Norm Mofjeld
City of Maple Grove	Harlan Van Wyhe
Minnesota Association of Townships	Dave Fricke
Metropolitan Council	Carl Schenk

2. BACKGROUND INFORMATION

Size of the Industry

Minnesota has abundant resources in its glacial deposits and a long history of sand and gravel production. The construction sand and gravel industry, a vital component of a growing and healthy economy, contributes significantly to Minnesota's economy. In 1987, the most recent statistics available, Minnesota ranked 11th nationally in sand and gravel production, 12th in industrial sand, and 30th in crushed stone.[3]

Projected trends suggest an increase in production and consumption of construction sand and gravel products across the country. Demand in the United States is expected to show an average annual growth rate of 2.9% between 1982 and 2000. The national forecast demand for the year 2000 is 1.0 billion tons.[4]

Minnesota is fortunate to have substantial resources to meet the increasing demand for aggregate material in the years ahead although, locally, sand and gravel may be scarce. The distribution of sand and gravel deposits in Minnesota depends on the local geology of an area. Figure 1 is a map of the statewide distribution of geologic deposits (primarily glacial deposits) where there is a high occurrence of sand and gravel.

The number of sand and gravel producers in Minnesota is difficult to estimate. Production statistics are maintained by the U. S. Bureau of Mines by way of a voluntary survey every two years. The survey for 1986 shows 203 companies operating at 424 pits in 82 of 87 counties in Minnesota. The survey results approximate the industry but probably underestimate it because not all companies participate.

Another estimate of the number of sand and gravel producers in Minnesota can be found in the Minnesota Industrial Minerals Directory for 1987 compiled by the University of Minnesota and the U. S. Bureau of Mines. The directory lists approximately 450 producers in the state including over 50 county highway departments.[5]

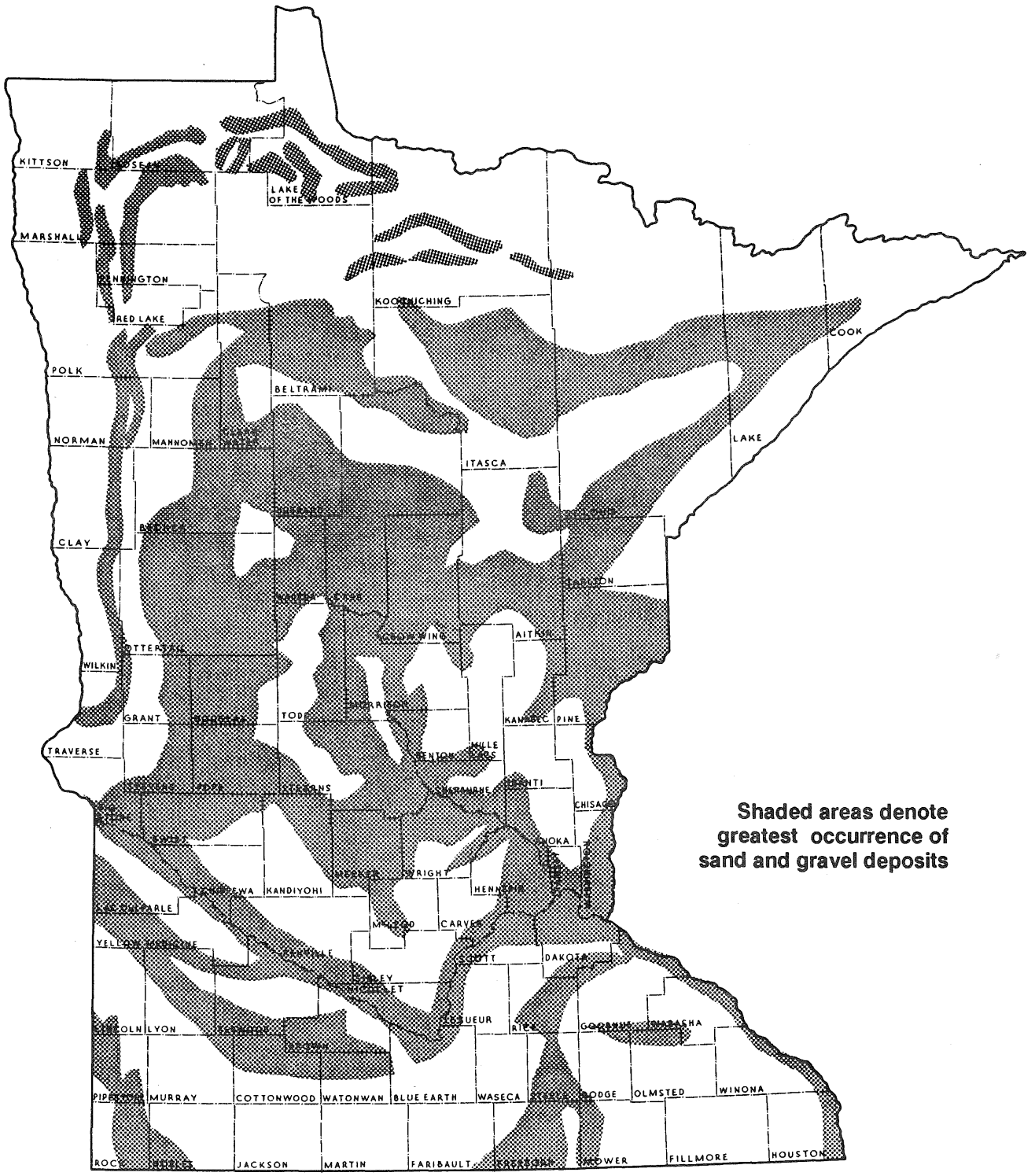
Several other public agencies are involved in the production of sand and gravel that are not listed in the directory. These include the Department of Transportation, Department of Natural Resources, and numerous cities and townships. These agencies have a need for aggregate in order to maintain parks, trails, roadways, and other services which they supply to the public.

The number of sand and gravel pits in the state is even more difficult to estimate. No statewide inventory of sand and gravel pits exists. Some general observations can be made, however, based on several sources of information.

The Minnesota Department of Transportation maintains a computer database called Aggregate Source Information System (ASIS), which contains potential aggregate sources for each county for use in highway construction projects. ASIS is provided to highway contractors to aid in the search for local aggregate sources. Mn/DOT cautions that ASIS does not constitute nor should it be construed as a statewide inventory of sand and gravel pits. It does, however, provide an approximation on the potential size of the resource and for that reason is included in the report. ASIS lists a total of 6,848 pits in the state with data from every county. The data are summarized in Table 3.

[3] Personal Communication. U. S. Bureau of Mines, Minneapolis, MN.
[4] L. L. Davis and V. V. Tepordei. Sand and Gravel. Chapter in Mineral Facts and Problems. 1985 edition. U. S. Bureau of Mines Bulletin 675. Pp. 689-703.
[5] Minnesota Industrial Minerals Directory. 1987. Minerals Resources Research Center, University of Minnesota in cooperation with the U. S Bureau of Mines. 50 pp.

FIGURE 1. DISTRIBUTION OF SAND AND GRAVEL DEPOSITS IN MINNESOTA.



Source: Industrial Minerals in Minnesota: A Status Report on Sand, Gravel, and Crushed Rock. September 1979. Minnesota Department of Natural Resources, Division of Minerals. Page 16.

TABLE 3. NUMBER OF SAND & GRAVEL PITS FOR EACH COUNTY ESTIMATED FROM TWO SOURCES

County	ASIS[1]	Task Force County Survey[2]			
		active	intermittent	depleted	total
Aitkin	136				
Anoka	31	2	2	5	9
Becker	81				
Beltrami	128				
Benton	47	10	6	17	33
Big Stone	40	6	2		8
Blue Earth	64				19
Brown	57				unk
Carlton	110				
Carver	51	12	10	8	30
Cass	121	20	5	5	30
Chippewa	63	2	15	13	30
Chisago	46	20	6	4	30
Clay	71	15	20	35	70
Clearwater	65	15	20	9	44
Cook	63	2	35	23	60
Cottonwood	70				
Crow Wing	118			200	
Dakota	104	20	5	10	35
Dodge	54	2	17	18	37
Douglas	54	4	30	25	59
Faribault	51	10	21		31
Fillmore	139				
Freeborn	67	10	5	45	60
Goodhue	135	6	7	25	38
Grant	74				
Hennepin	134	9	2	1	12
Houston	88	50	52	102	
Hubbard	82	20	15	6	41
Isanti	35	11		32	43
Itasca	196	20	20	10	50
Jackson	64	8	4	8	20
Kanabec	86	16	4	4	24
Kandiyohi	85	23	17	18	58
Kittson	45				
Koochiching	173	60	34		94
Lac Qui Parle	53	9	1	7	18
Lake	75	15	15	10	40
Lake of the Woods	54				unk
Le Sueur	50	24	16	6	40
Lincoln	41	15	5	20	40
Lyon	74	8	4	5	9
McLeod	59	12	35	15	62
Mahnomen	26	5	2	3	10
Marshall	66	40	15	15	90
Martin	69				
Meeker	74	37	32	unk	70
Mille Lacs	87	15	5	5	25
Morrison	98	20	15	12	47
Mower	83	6	2	13	24
Murray	44	24	7	6	37
Nicollet	40	6	7		13
Nobles	57	10	22	15	47
Norman	63	25	25	35	85
Olmsted	110	10	10		20
Otter Tail	162	230	90	280	600

TABLE 3. NUMBER OF SAND & GRAVEL PITS (continued)

County	ASIS[1]	Task Force County Survey[2]			
		active	intermittent	depleted	total
Pennington	45	15	10	25	50
Pine	121	25	15	20	60
Pipestone	57	15	5	20	40
Polk	80				
Pope	69				
Ramsey	38				1
Red Lake	26	15	5	15	35
Redwood	64				unk
Renville	64	12	4	20	36
Rice	89	25	25	15	65
Rock	32				unk
Roseau	76				
St. Louis	505	129	30	50	209
Scott	77	5	1	14	20
Sherburne	46	13	2		19
Sibley	14				
Stearns	163				unk
Steele	65	12	4	34	50
Stevens	27	17	8	4	29
Swift	62	21	5	5	31
Todd	88				
Traverse	45	2	2	1	5
Wabasha	93				unk
Wadena	28	8	5	7	20
Waseca	23				
Washington	122	15	13	2	30
Watonwan	44	9	3	9	21
Wilkin	33	4	7	29	40
Winona	89				
Wright	82	37	60	20	117
Yellow Medicine	68				
TOTALS	6,848	1,263	814	1,110	3,422

[1] Aggregate Source Information System, ASIS Log, September 1987 (Mn/DOT)

[2] Estimates reported by county officials in the Task Force County Survey (1988) for the number of total, active, intermittently active, and depleted sand and gravel pits in a given county. Note that the numbers reported for active, intermittently active and depleted do not necessarily add up to the number reported for total.

Another estimate on the number of sand and gravel pits in the state comes from the task force statewide county survey conducted in the summer of 1988. (Complete survey results are presented in Part 4 of this report.) The survey asked the counties to report an estimate of the number of active, intermittently active, and depleted pits for their county and to cite the source of information. The results of the survey, though not statistically significant, provide perspective on the number of pits in the state. Seventy counties reported a total of 3,422 pits statewide. Of these, approximately 1,263 were identified as active, 814 as intermittently active, and 1,110 as depleted. The sources used for the survey range from personal observations to county records. Survey results for each county are also found in Table 3.

In summary, a likely range for the number of operators in Minnesota is from 203 (Bureau of Mines) to 450 (Industrial Minerals Directory). The number of active pits probably ranges from 424 (Bureau of Mines) to 1,263 (Task Force Survey). The probable range for total number of pits is from 3,422 (Task Force Survey) to 6,848 (ASIS).

Industry Segments

Following is a brief description of the construction sand and gravel, crushed stone, and industrial sand industries to allow for comparisons among these industries. It should be noted that crushed stone and industrial sand is beyond the scope of this report. Hereafter in the report, "sand and gravel" will be understood to mean construction sand and gravel.

Construction Sand and Gravel. In 1987, there were 4,300 companies with approximately 5,800 operations that produced construction sand and gravel across 50 states in the United States at a value of $3.0 billion. Construction sand and gravel is used in a wide array of products including: concrete aggregates and concrete products (28% of tonnage); asphaltic concrete aggregates (10%); road base and coverings (15%); fill (7%); railroad ballast and snow/ ice control (2%); and other uses such as baseball diamond mix, walking path foundation, tennis courts surfaces, landscaping and gardening, roofing gravel, erosion control, drainfield aggregate, and masonry block sand (38%).[6]

Every county in the state has at one time produced sand and gravel. Production figures for the six districts in Minnesota are shown in Table 4. The metropolitan region dominates with production of 8,501 thousand short tons in 1986. Statewide production figures for 1987 are estimated at 25,200,000 short tons for a value of $67,400,000.[7]

TABLE 4. CONSTRUCTION SAND & GRAVEL PRODUCTION IN MINNESOTA BY DISTRICT FOR 1986.[8]

District	Short Tons	Value ($)
Northwest	3,668,000	8,820,000
Northeast	2,283,000	5,002,000
Central	3,662,000	6,503,000
Southwest	3,148,000	6,736,000
Metro	8,501,000	18,761,000
Southeast	2,485,000	6,870,000
TOTAL*	24,055,000	53,116,000

* TOTAL includes 309,000 short tons valued at $425,000 not reported by county source.

[6] V. V. Tepordei. Sand and Gravel. In: Mineral Commodity Summaries. 1988. U. S. Bureau of Mines. Page 136.
[7] Personal Communication. U. S. Bureau of Mines, Minneapolis, MN.
[8] U. S. Bureau of Mines. Preliminary figures from the 1986 Minnesota Chapter of the Minerals Yearbook. U. S. Bureau of Mines.

Crushed Stone. The United States is the largest consumer of crushed stone worldwide. In 1987 there were 1,790 companies with 3,560 active quarries in 49 states that produced $4.4 billion worth of crushed stone. Crushed stone is used most often for construction as a source of aggregate (63% of tonnage) but also for cement and lime manufacture (11%), agriculture (3%), and other unspecified and miscellaneous uses (23%) such as railroad ballast and furnace flux. Of the crushed stone operations in 1987, 72% were limestone/dolomite, 15% granite, 8% traprock, 2% sandstone, and 3% other.[9]

In Minnesota there are 31 crushed stone companies operating at 69 sites in 16 counties. All of these are quarry operations that employ hard rock mining methods for extraction. Statewide, 1987 production was 8,995,000 short tons at a value of $29,246,000.[10]

Industrial Sand. Industrial sand is high grade silica sand that is used in glassmaking and foundry applications, as an abrasive and refractory, and for hydraulic fracturing. In 1987 there were 92 companies from 162 operations in 38 states that produced $366 million worth of industrial sand.[11]

In Minnesota, there are currently two companies operating in three counties. All are quarry operations. No production estimates for 1987 are available, however production figures for 1985 showed a decrease of 2% in production with an increase of 4% in value.[12]

National and state production figures for these industries are summarized in Tables 5 and 6. A review of the figures will show that construction sand and gravel dominates in Minnesota with respect to number of operations, amount of production, and value.

TABLE 5. CONSTRUCTION SAND & GRAVEL, CRUSHED STONE, AND INDUSTRIAL SAND PRODUCTION IN THE UNITED STATES FOR 1987.[10]

Commodity	States (number)	Companies (number)	Operations (number)	Short Tons (millions)	Value ($)
Construction Sand & Gravel	50	4,300	5,800	896.9	3.0 billion
Crushed Stone	49	1,790	3,560	1,051.0	4.4 billion
Industrial Sand	38	92	162	27.7	366 million

TABLE 6. SAND & GRAVEL, CRUSHED STONE, AND INDUSTRIAL SAND PRODUCTION IN MINNESOTA FOR 1987.[10]

Commodity	Counties (number)	Companies (number)	Operations (number)	Short Tons (thousands)	Value ($)
Construction Sand & Gravel	82	203	424	25,200 [e]	67.4 million [e]
Crushed Stone	16	31	69	8,995	29.2 million
Industrial Sand	3	2	3	withheld	withheld

e = estimated

[9] V. V. Tepordei. Stone (Crushed). In: Mineral Commodity Summaries. 1988. U. S. Bureau of Mines.
[10] U. S. Bureau of Mines, Minneapolis, MN.
[11] V. V. Tepordei. Sand and Gravel. In: Mineral Commodity Summaries. 1988. U. S.. Bureau of Mines
[12] U. S. Bureau of Mines. Preprint from the 1985 Bureau of Mines Minerals Yearbook. The Mineral Industry of Minnesota.

Types of Sand and Gravel Operations

Generally there are two kinds of sand and gravel operations. The first are stationary operators who use the same pits for an extended period of time. These operators are permanently located and often have a large capitol investment in processing plant facilities (concrete, for example). The pits used by stationary operators are usually close to the processing plant facilities.

The other type of operation is the mobile crusher. These operators have mobile equipment that can be transported to any location. They range throughout the state and may be at a given location for only a few weeks at a time. They often supply aggregate to contractors. Both types of operators are equally important to the sand and gravel industry and are not mutually exclusive. Operators may employ both methods of operation at a single location.

According to 1986 statistics collected by the U. S. Bureau of Mines, there were 50 stationary, 172 mobile, 18 stationary and mobile combined, 21 unspecified, and 4 dredging operations for a total of 265 active sand and gravel operations in Minnesota.[13] (Note: The U. S. Bureau of Mines maintains separate statistics on the number of companies, number of pits, and number of active operations. These numbers are not necessarily the same.)

Sand and gravel pits can be classified according to patterns of use. Such a method of classification is useful from a reclamation perspective. For the purposes of this report, three types of pits will be discussed: active, intermittently active, and depleted.

Active. Active pits are those where material is removed on a regular basis throughout the year. Due to the climate in Minnesota, sand and gravel mining operations generally shut down for some period in the winter. Active pits are rarely idle except during the winter months. These pits often service a permanent facility like a ready mix plant.

Intermittently active. Intermittently active pits are those where ample resources remain but the pit is only worked on an as-needed basis. These pits are often idle for long periods of time. When activity occurs, it may only be for a few days or weeks at a time.

Depleted. Depleted pits are those where mining operations have permanently ceased. Due to the geologic origin of sand and gravel deposits, few pits rarely become depleted. Rather, they are abandoned because the economics are prohibitive for further extraction.

Geographical Distinctions

The geographical location of a sand and gravel pit may play a role in terms of how the pit is regulated and in final reclamation. An obvious geographical distinction can be made between the Twin Cities metropolitan area and the outstate regions in Minnesota.

In the metropolitan area specifically and in other urban or developing areas throughout the state, there is a great demand for construction aggregate coupled with a high density population. Conflicts between mining and the public occur, however public concerns are often addressed through the permitting process required by various ordinances and regulations. Metropolitan sand and gravel operations often must comply with city, township, and county regulations in addition to state and federal (see Part 3 for a description of applicable state and federal regulations). These operations generally come under closer scrutiny because of greater public awareness.

[13] V. V. Tepordei. 1986. Sand and Gravel. Chapter in Minerals Yearbook. Volume I. Metals and Minerals. U. S. Bureau of Mines

In terms of reclamation, metropolitan operations are often in demand for subsequent uses after mining due to land use pressure. An example is the sand and gravel mining area in Maple Grove where the land is already zoned for development after mining. Currently, active mining is planned to proceed in a manner to accomodate the subsequent end use.

In the outstate areas, land use pressure is generally not as great as in the metropolitan area. Land values and population density are lower. Conflicts do not seem to come into focus as often as in the metropolitan area. Operators usually must comply with regulations enforced by one local unit of government, most often the county. State and federal regulations may also apply.

Other geographical distinctions were noted between the northern and southern part of the state. In the northern areas, sand and gravel pits are often small and remote. The population density is lower and the forest cover often shields pits from public view. This is in contrast to the southern part of the state where agriculture dominates. Here sand and gravel pits are more visible and the population density is higher.

Reclamation

The final characteristics of a mining area depend on whether the site will be above or below the water table when mining ceases. Draglines are often used for wet mining. When mining ceases in a wet mining operation, a water-filled excavation usually remains. This type of mining often allows for progressive reclamation since some reclamation measures can be undertaken during active mining. Examples of such measures include grading the shoreline area to flat slopes to provide a littoral zone, leaving an irregular bottom and shoreline for diversity, providing islands in open water, and revegetating.

When mining occurs above the water table, the landform feature that remains is a dry excavation with potentially steep highwalls. These pits are often located on topographic landforms like ridges or eskers and as such may be more visible. Mining is conducted using equipment like bulldozers, front end loaders, and scrapers. Reclamation of dry pits may involve reserving the topsoil from initial clearing, grading highwall slopes to a flatter slope, reapplying topsoil, and revegetating using seed and fertilizer.

Wet and dry sand and gravel mining areas can be reclaimed to a variety of end uses depending on site specific conditions. There are many examples of successful reclamation across the state including natural revegetation, recreation, wildlife habitat, agriculture, and residential/commercial development. Several specific examples are described below.

Natural Revegetation/Recreation

- The Red River Valley Natural History Area located one mile north of Crookston is now a wildlife management area and an environmental education center. The 85 acre site was formerly a sand and gravel mining area. Mining began at the turn of the century and continued sporadically until the early 1960's. Approximately 35 acres of the site had been mined to a depth of 6 feet. Overburden spoil piles remained throughout the area. A portion of the site was mined below the water table. No plan for reclamation was implemented when mining operations ceased. Natural revegetation began immediately following mining. [14]

  In the early 1960's, most of the site was acquired by the Northwest Agricultural Experiment Station. In 1971, the Northwest Agricultural Experiment Station began a project in the area to demonstrate and practice wildlife management techniques. Many wildlife and natural revegetation studies have been conducted since 1971. Today the area has a nature trail system, a meeting facility, interpretive materials, and a staff who conduct interpretative tours and perform maintenance. Each year approximately 600 people use the area for a variety of recreational and educational purposes.

[14] Wildlife Value of Gravel Pits Symposium. 1982. Edited by D. Svedarsky and R. Crawford. Misc. Pub. 17-1982. Available for $5.00 from Northwest Agricultural Experiment Station. University of Minnesota. Crookston.

Recreation

- An example of a post-mining recreational land use is McMurray Softball Field at the intersection of Jessamine Avenue West and Lexington Parkway in St. Paul. This former sand and gravel mining area has been reclaimed to an attractive and popular recreational facility.

Wildlife Habitat

- Since 1969, the DNR has acquired 35 depleted pits from Mn/DOT. Approximately one-third of these are actively managed for wildlife. Several are managed for specific purposes such as to improve nesting cover. The remainder are too small or inappropriate sites for wildlife management.
- Granite City Ready Mix near St. Cloud has done an outstanding job in reclaiming its mining areas for wildlife habitat using a progressive reclamation approach. Large permanent ponds with irregular shoreline and islands remain after mining. Currently, the area is used by wildlife. The operator speculates that the land will be marketed as residential lakeshore property when mining ceases.

Agriculture

- There are numerous examples of agricultural reclamation of former sand and gravel mining areas throughout the state. Reclamation to agriculture is perhaps one of the most common reclamation practices, particularly in the farming districts of northwestern, central, and southern Minnesota. In many cases, there is little or no indication of the former mining area.

Commercial/Residential

- The Twin Cities metropolitan area contains many examples of successful post-mining commercial/residential uses where the sand and gravel operators collaborated with the subseqent developer. Perhaps the most illustrative is the Hedberg gravel mining area in Edina near Interstate 494 and France Avenue just south of Southdale shopping center. This is the last undeveloped property in the city of Edina and as such is regarded as prime real estate. The development project that will follow mining at the Hedberg site is known as Centennial Lakes. It will include: 1,250,000 square feet of Class A office space; 682 low rise condominums; 403 mid and high rise apartment units; an eight screen movie theatre with 2,500 seats; 202,000 square feet of general retail; a 250 room hotel; a 10 acre mini-lake which will extend from north to south of the development; and 14 acres of open space appropriately vegetated primarily surrounding the lake. The total development is expected to be phased over a 10 year period with construction to begin in the fall of 1988. Examples of commercial/residential reclamation exist in other metropolitan areas across the state.
- Another example of a former mining area reclaimed to a commercial development is a shopping center located at 36th and Highway 100 in St. Louis Park that features a Byerly's grocery store, a Target store, a luxury apartment building, and a mid-rise office building complex.

Reclamation Costs

Reclamation costs for sand and gravel pits are difficult to estimate. Costs can vary depending on labor rates for a given area, availability of proper equipment, availability of topsoil, weather conditons, type of planting stock, and the operator's reclamation experience. A range of reclamation costs are cited below.

Example 1: One operator in the metropolitan area estimated reclamation costs based on 1988 dollars as the following:

$.75/cubic yard of on-site material to slope a steep embankment;
$1.25/cubic yard of on-site material to transport from an area to complete a slope;
$550.00/acre to seed and mulch.

Example 2: In the fall of 1988, an operator in the St. Cloud area reclaimed 1.3 acres in a wet mining operation. The operator reported the following costs:

Dragline costs: A 54B dragline and operator rented at the Association of General Contractor Rate (AGC) rate of $125/hour for 25 hours.
Loader costs: 966D cat loader and operator rented at AGC rate of $80/hour for 20 hours
Seeding costs: 75 pounds of seed mix = $150, labor for seeding = $45

Total dragline costs = $3,125
Total loader costs = $1,600
Total seeding costs = $195
Total cost for reclaiming 1.3 acres = $4,920 = $3,800/acre

Example 3: In northern Minnesota, some sand and gravel pits have been reclaimed to a combination of forest and grass cover. Following are some typical costs for site preparation, tree planting, and seed that would be applicable for sand and gravel pits.

Bare root seedlings from a state nursery = $75/thousand (conifers) = $60/acre @ 800 seedlings/acre

Wildlife shrub planting stock = $145/acre

Hand planting of seedlings = $40/thousand = $32/acre at 800 seedlings/acre

Dozer work to spread out overburden and backslope = $50 - $80/acre

Cover establishment of grasses and legumes (including disking, mulching, seed, seeding, and fertilizer) = $75 - 100/acre

Cost to establish native grasses = $275 - 300/acre

Importing topsoil = approximately $6/yd^3.
For two inches of topsoil = 270 yd^3/acres = $1,620/acre
For four inches of topsoil = 540 yd^3/acre = $3,240/acre
For six inches of topsoil = 810 yd^3/acre = $4,860/acre

Example 4: Polk County is the only county which has made significant use of monies in the special reclamation fund from the Aggregate Material Tax. A reclamation project was conducted on a 300 acre county-owned sand and gravel pit. The formerly abandoned land was returned to productive use for farming and wildlife habitat.

Mining had been conducted over a number of years and originally consisted of high grading the gravel reserve. Much of the lower grade gravels were stripped and either selectively stockpiled or merely mixed with topsoil and other overburden material. The initial activity along with subsequent removal of sand and gravel from the lower grade gravel stockpiles left a topography consisting of high steep-sided piles and pits.

The reclamation which cost $42,000 consisted mainly of earth work conducted by a local contractor. Several objectives were realized by the activity. Many dangerous highwalls were removed. Flattened high ground areas which were above the water table were covered with topsoil and will be used for farming. The wet areas were not conducive for agriculture and were therefore reclaimed to a wildlife habitat area.

In the process of conducting this reclamation activity, between 30,000 and 35,000 cubic yards of gravel was salvaged from the various scattered piles of lower grade gravel. This gravel is expected to be utilized over the next several years. This gravel, valued at $22,000 to $26,000, would not have been available except for the fact that the reclamation activities were conducted.

Vegetation on the non-agricultural portion of the reclaimed site consisted of clover and rye grasses. In addition, natural invasion of tree species has taken place in these areas. As already mentioned, much of the reclamation cost was associated with earth work which will be recouped through sale of the recovered gravel. There was no attempt made to break down costs or keep track of the amount of material that was moved during the reclamation process. It would be difficult to make a projection on typical reclamation costs based upon this example.

Economic and Management Perspectives

Reclamation is more likely to occur where other development is occurring. If the site is in or near the "path of progress", the post-mining sale value of the site may be considerable. A real estate development company may be willing to pay a high price to a mining company to purchase the site for subsequent development after mining ceases if the site has potential.

General factors which influence the likelihood of reclamation and successful post-mining land use are those which also influence the growth and development of cities and towns. These include: general industrial base; types of companies and jobs; cultural aspects; age, size and growth of population; strength of the local, regional, and state economy relative to the national economy; business climate issues including taxation; current land uses and zoning; location of urban services including transportation facilities, sewers, educational institutions; new construction, and vacancy rates.

Reclamation often does not occur because of financial constraints on the operator. Another key reason is the diversity of management perspectives. Management perspectives are quite variable. Several management perspectives with respect to reclamation are listed below.

- Profit margins may be so slim at a mine site that it is difficult for some to comprehend spending additional dollars to do earth work or engage in other activities that will result in a more marketable post-mining site.

- Profit margins may be sufficient to engage in some reclamation work, but operators may not have sufficient vision to imagine the future pay back that might be possible on the sale of a building site many years into the future after mining has ended.

- Profit margins are adequate, the operator has the vision, but not the patience, to spend the money now in anticipation of a long-term gain. As is the case with many businesses, not just sand and gravel mining, managers are evaluated on the rates of return they achieve in fairly short periods (quarter to quarter, year to year).

- There may not be a long-term gain to be realized from the post-mining development, especially if the site is not in the "path of progress". This may be the most difficult situation to address because the operator, as any investor, is reluctant to invest money without a sufficient pay back. The question then becomes who should pay for what amounts to a "hidden" cost that exists but remains unacknowledged during the mining process and becomes evident when mining ceases.

- Profit margins are adequate and while the pay back probably exists in the long-term, successful reclamation has occurred either voluntarily or due to local regulation. Economics also enters into this picture because operators who have reclaimed may perceive it as a cost of doing business that is necessary to stay in business either at that mine site or at other locations. Establishing a positive track record may actually serve to control costs for the operator at another location because a community can observe the company's past behavior. This may reduce fear and uncertainty for a community about allowing a new operator within its jursidiction.

3. REVIEW OF ENVIRONMENTAL REGULATIONS

Federal Regulations

At the federal level, several agencies may have regulatory and project review authority for sand and gravel operations.

U. S. Department of Labor. The U. S. Department of Labor, Division of Mine Safety and Health Administration (MSHA) is responsible for ensuring safety of mine workers. While MSHA has no authority after operations cease, its requirements dealing with maintaining safe pitwall slopes may have some enduring benefits. In discussions with MSHA, however, it was pointed out that with time, an acceptable safe working slope could deteriorate. In addition, it was stated that although a slope may be safe for workers, such a slope may not lend itself to practical reclamation.

U. S. Army Corps of Engineers. Another federal agency with regulatory authority is the Army Corps of Engineers, a branch of the U. S. Defense Department. If a sand and gravel pit were located in a wetland, a section 404 permit might be necessary. The factor that would trigger the need for a permit is whether fill material would be placed in a wetland (removal of material does not trigger the permit process). Such fill material could include rock or soil used to construct access roads to the pit or top soil stripped from the pit and placed elsewhere within the wetland. When a section 404 permit is needed, the Corps of Engineers requires the area to be restored, with emphasis on re-establishing it as a wetland. Review of section 404 permits often involves the U.S. Fish and Wildlife Service, Department of the Interior.

U. S. Department of the Interior. The National Park Service has responsibility for enforcing provisions of the National Historic Preservation Act of 1966 (P. L. 89-665) and Procedures for the Protection of Historic and Cultural Properties (36CFR60; 36CFR800). Under these regulations any agency using federal funding for development projects which potentially affect historic or archaeological sites must submit plans of the proposed undertaking for review by the appropriate State Historic Preservation Officer (SHPO). The Minnesota SHPO staff review hundreds of federal undertakings each year including the development of sand and gravel pits. When cultural resource sites are determined to be involved, the sponsoring agency, the Advisory Council on Historic Preservation, and the SHPO must develop a plan for protection of the resource which in the case of gravel pit development could include, for example, avoidance or reclamation as a measure to mitigate potential impacts.

U. S. Environmental Protection Agency. Several permits may be necessary from the Environmental Protection Agency. However, since these are issued and enforced in Minnesota by the Minnesota Pollution Control Agency (MPCA), they will be discussed under state regulations.

Other Federal Agencies. Other federal agencies such as the U. S. Fish and Wildlife Service and the Soil Conservation Service may be involved in a review capacity for sand and gravel operations depending on the mining proposal.

State Regulations

Minnesota currently has no comprehensive state program related to the reclamation of sand and gravel pits. When reclamation occurs, it is generally the result of actions taken by several levels of government, most often led by the local units. At the state level, several environmental permits may be necessary for sand and gravel operations that could influence how a sand and gravel pit might be left upon abandonment.

Environmental Quality Board The Minnesota Environmental Policy Act of 1973 established a formal process for reviewing the environmental impacts of major development projects. The purpose of the review is to provide information to units of government before approvals or necessary permits are issued.

The process operates according to rules adopted by the Environmental Quality Board (EQB), but actual review is carried out by a local governmental unit or by a state agency. This agency or local government unit is referred to as the RGU (Responsible Governmental Unit). Depending on the type and size of a project, the review can take the form of an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS).

An EAW is a four page questionnaire about the project, the purpose of which is to determine if a project has the potential for significant environmental effects. The RGU prepares the EAW. If an EAW results in a determination that an EIS in necessary, the RGU would also have to prepare an EIS.

An EIS, whether initiated as a result of the findings of an EAW, or required because a project falls into a mandatory category, must identify the likely environmental impacts of the project and discuss ways to lessen or avoid such impacts.

For new or expanding sand and gravel operations, an EAW is mandatory on pits greater than 40 acres in size, while pits exceeding 160 acres require the preparation of an EIS. In either case, the RGU for sand and gravel projects is the local unit of government having the greatest approval responsibility with regard to the project.

Minnesota Pollution Control Agency. The Minnesota Pollution Control Agency has regulatory responsibility for sand and gravel mining and processing operations. The permits which typically might be needed relate to air and water quality. The air quality permits address smokestack discharges from processing plants and fugitive dust from operating areas. The water quality permits might consist of either, or both, of the following: a State Disposal System (SDS) permit or a National Pollutant Discharge Elimination System (NPDES) permit. These permits may be necessary if the operation discharges water (from pit dewatering and gravel washing, for example).

Other MPCA permits or approvals may be required depending on the activities conducted at the site. These include: 1) a permit regulating noise; 2) a permit for storage and disposal of hazardous materials and wastes such as fuels, oils, lubricants, and certain electrical equipment which might contain polychlorinated byiphenyls (note that the hazardous waste program has been delegated to the counties in the metropolitan area); 3) various solid waste disposal permits covering demolition materials which might be generated if a sand and gravel processing plant is dismantled; 4) a permit for open burning of brush from clearing or stripping operations; and 5) a permit for storage of liquids in above ground tanks (disclosure to MPCA of underground liquid storage tanks and leaks is required by federal law).

The MPCA is currently in the process of developing a series of handbooks for several industries. These handbooks will identify Best Management Practices (BMP) that can be utilized by industry, landowners and land managers to ensure that nonpoint discharges of water (surface water runoff and contributions to groundwater) will be of acceptable water quality. There will be a separate handbook developed for timber, agriculture, mining, and urban development. The mining handbook will include sand and gravel mining. Preparation of the BMP handbook for the sand and gravel mining has been postponed.

The MPCA also has authority for solid waste management, demolition waste, recycling and waste reduction, and control of unauthorized dumping. Local units of government have the responsibility for solid waste management within their jurisdictions according to M. S. Chapter 400. Illegal dumping in sand and gravel pits is a common complaint received by the MPCA. The dumping ranges from small quantities of household trash to hazardous wastes. This unauthorized disposal has the potential for severe ground water quality impacts because of the highly permeable conditions in some sand and gravel pits. Illegal dumping is difficult to control because many pits, particularly depleted or intermittently active pits have no access control and are relatively isolated.

Minnesota Department of Transportation. A large percentage of the sand and gravel pits developed in Minnesota are to supply material for highway construction. In order to keep construction and maintenance costs low, the Minnesota Department of Transportation (Mn/DOT) has purchased or leased

numerous aggregate sources throughout the state. Reclamation decisions and future use potential will differ depending upon ownership of the sand and gravel resources. While Mn/DOT has no specific standard established for how reclamation is to be accomplished, general guidlelines are contained in section 1602 of Mn/DOT's "Standard Specifications for Construction". On private land, for example, every effort is made to accomodate the desires of the landowner as to pit reclamation after aggregate has been excavated for highway construction.

On land owned by Mn/DOT, decisions are left to the Engineer in charge of the project to determine how the pit will be left after aggregate has been excavated. In addition, Mn/DOT's District Maintenance Engineers have long-term custodial control of Mn/DOT owned pits within their areas. Most of these pits are considered intermittently active, and are used on a continuing basis for supplying aggregate to both highway maintenance and construction projects. Such use makes reclamation impractical until a pit is depleted, at which time the pit may be sold to the previous, or an adjacent property owner. A number of these pits have also been converted to Mn/DOT truck stations and a large depleted pit in Maplewood will soon be the site of the new Mn/DOT Central Laboratory and Research Center.

In several instances within the twin city metropolitan area, however, detailed reclamation plans have been prepared by Mn/DOT's Design Services and Environmental Services personnel in accordance with local regulations. Since 1969, ownership of 35 depleted Mn/DOT pits has been transferred to the DNR upon depletion of the aggregate resource. In many cases the result has been the development of wildlife habitat and active wildlife management by the DNR.

It should be noted that Mn/DOT has no regulatory authority for sand and gravel operations. However, Mn/DOT is involved in the development of aggregate resources throughout the state and for that reason, a description of their programs is included in this section of the report.

State Archaeologist's Office (SAO) and the Minnesota Historical Society (MHS). Both of these agencies have responsibilities for enforcing provisions of M. S. 138.31 to 138.42, which require agencies controlling state or state subdivision lands (county, township, municipal) to submit for review by SAO and MHS development plans affecting those lands when archaeological sites are known or suspected to be present. The SAO in cooperation with the Minnesota Indian Affairs Council also has responsibility for enforcing M. S. 307.08 which requires review of any development projects affecting unplatted cemeteries on public or private lands. As the result of review under these statutes, recommendations for reclamation of several sand and gravel pits have been made to protect historic or archaeolgical sites.

Minnesota Department of Natural Resources. The DNR is often involved in construction and maintenance of forest roads and access roads to campgrounds and recreational areas. The Division of Forestry currently maintains approximately 2,063 miles of roads and in 1987 used about 170,000 yd^3 of gravel. Reclamation is conducted on a site by site basis.

In addition, DNR as manager of state-owned metallic and nonmetallic resources administers a sand and gravel leasing program. Currently, the DNR has 166 active sand and gravel leases in 19 counties covering 1,553 acres of land. Reclamation of these pits is addressed as a special condition of the lease.

The primary regulatory authority exercised by the DNR on sand and gravel operations is through two permits: the water appropriation permit and the work in the beds of protected waters permits. These permits would be required in the event of a stream crossing (by a haul road, for example) or if the pit would need to be dewatered to gain access to the sand and gravel. These permits deal with the active phase of mining and their influence on long-term reclamation is somewhat limited.

The DNR also has responsibility for three other programs established by law which might affect certain sand and gravel operations. The laws establishing these programs are: The Shoreland Management Act (M. S. 105.485); the Floodplain Management Act (M. S. 104); and the Minnesota Wild and Scenic Rivers Act (M. S. 104.31). These acts are "land use" or "zoning" laws which affect shoreland development. They require the Commissioner of Natural Resources to prepare minimum statewide development standards

for shoreland, flood plains, and wild and scenic river areas. These standards must then be adopted by local units of government (city, township, and county) which will enforce and regulate the standards through local zoning or land use ordinances. Since the acts allow the local units of government to be more restrictive than the minimum standards established by the DNR, individual local units of government must be contacted to determine how specific regulation might affect a particular sand and gravel operation.

The DNR is currently in the process of amending the regulations relating to the Shoreland Management Act. The changes would require sand and gravel operators, working within shoreland areas, to develop a site development and restoration plan. The plan must address dust, noise, possible pollutant discharges, hours and duration of operations, and anticipated vegetation and topographic alteration.

In the amended rules, "shoreland" is defined to mean land located within the following distances from public water: 1,000 feet from the ordinary high water level of a lake, pond, or flowage; and 300 feet from a river or stream, or the landward extent of a flood plain designated by ordinance on a river or stream, whichever is greater. The limits of shorelands may be reduced whenever the waters involved are bounded by topographic divides which extend landward from the waters for lesser distances and when approved by the commissioner.

Local Regulations

Minnesota has 87 counties, 1,802 townships, and 855 cities. Counties, townships, and cities have the authority to regulate sand and gravel mining through zoning ordinances and land use planning. However, not all exercise their authority to regulate.

Currently the most comprehensive review of sand and gravel operations takes place at the level of local units of government. Besides being responsible for EIS/EAW preparation, local units of government must evaluate the project in terms of local zoning ordinances and land use plans. It is at this level that the public, which may be affected by such a project, has a direct opportunity to express its views.

A number of counties and municipalities were contacted in preparing this report. While the degree of regulation of active pits varies considerably among local units of government, many of the local units contacted are using a site specific approach to resolve problems which are unique to the site yet meet the needs of the community. Several suggested that some operations of the past were not conducted in the best manner, but that those mistakes will not be repeated in the future.

Related Statutes

State regulations specifically regulating sand and gravel are located in only two parts of Minnesota's Statutes, M.S. § 84.94 and M.S. § 298.75. Both statutes were enacted during the 1980's. M. S. § 84.94 requires the identification, by the DNR, of significant aggregate deposits in the outstate area (the seven county metropolitan area is specifically exempted). Once identified, protection of such deposits must be considered by local units of government in their land use decisions. The second statute, entitled "Aggregate Material Tax" (M.S. § 298.75) included sand and gravel by definition, and established a special tax to be collected by certain counties which either produce or import aggregates. Copies of these statutes are found in Appendix C.

The aggregate mapping program established by M.S. § 84.94 is an on-going program conducted by the DNR. Sherburne County, selected as a pilot study for the aggregate mapping program, was completed in 1987. Wright County is the second county to be mapped under this program. Mapping began in April 1988 and is scheduled for completion in the summer of 1989. The next county to be mapped under this program is currently under considersation. It will likely be a county along one of the transportation corridors between the Twin Cities and Rochester or the Twin Cities and St. Coud since these areas are experiencing rapid urban expansion.

Because of the directive given to this task force, two other statutes will be briefly mentioned. Both statutes deal with certain aspects of how mines in Minnesota can be abandoned. However both either implicitly or explicitly exclude sand and gravel from consideration.

The Mineland Reclamation Act (M.S. § 93.44 to 93.510) which directs the Commissioner of Natural Resources to establish a permit program for ensuring that the reclamation of mining areas is accomplished, applies only to the mining of metallic minerals and peat. The second statute, Minnesota Statutes Chapter 180 entitled , "Mine Inspectors" in part requires the fencing of open pits upon abandonment. This law however, is also directed mainly at metallic mineral mines, specifically stating that sand, crushed rock and gravel open pits are exempted.

4. TASK FORCE SURVEY RESULTS

National Survey

To evaluate how other states deal with reclamation issues, relative to sand and gravel, a short survey was developed. A copy of the survey, including a summary of responses, is found in Figure 2 and Table 7. The survey was sent to natural resource managers and regulators in the 47 states of the continental U. S.

Forty one states responded While most of the respondees provided answers to all of the questions, several had difficulty in providing information on the number of permits that had been issued, as well as the total number of pits in the state. This was not surprising, since we in Minnesota have the same difficulty.

Some of the more interesting results of the survey are as follows. Only 8 states indicated that neither state nor local regulations addressing sand and gravel, exist. Fifteen rely solely on state regulations, 7 only on local units of government, and in 11 states regulatory powers are shared.

The quantity of operations in a state seems to have little influence on how the industry is regulated. For example, the number of pits in the 8 states which reported no reclamation regulations range from 30 to 2,300 pits. In Kentucky, which contains only 35 pits, reclamation is handled at both the state and local levels. A similarly diverse trend occurs in states containing large number of operations. Five states, for example, report the existence of more than 2,500 pits, each. The means of regulation in these states breaks down as follows: 2 have state, but no local regulation; 1 local, but no state; and the remaining 2 have shared, state and local regulatory powers.

A conclusion that may be drawn from the survey of states is that the regulation of the sand and gravel industry varies greatly among states.

County Survey

To evaluate how sand and gravel pit reclamation is regulated at the local level, the task force distributed a survey to all of Minnesota's 87 counties in May 1988. The survey addressed local zoning ordinances relating to sand and gravel pit restoration and solicited information on the number of sand and gravel pits.

Seventy counties responded. In most cases, county zoning administrators and county engineers submitted the information requested by the survey. A copy of the survey including a numerical summary of responses is found in Figure 3. Selected questions are summarized by county on Table 8.

The reader should be advised that the survey is not statistically valid. It is now apparent that some of the questions on the survey were unintentionally vague which lead to confusion for the respondees. As a consequence, some respondees did not answer every question. In other cases, some answered questions that were not applicable.

Part One of the survey addressed local zoning ordinances relating to the mining of sand and gravel. Of the 70 counties reporting, 30 counties indicated that they have a specific ordinance governing sand and gravel pit mining. Thirty nine counties reported that they did not have a specific ordinance. In many of these cases, conditional use permits are enforced as an alternate method of addressing sand and gravel operations. Several counties do not regulate sand and gravel through any means. County ordinances on sand and gravel were adopted from 1967 to 1987 with the majority being enacted in the late 1970's and early 1980's.

In 20 of 70 counties reporting, local units of government have ordinances regulating sand and gravel. These 20 counties report 66 township ordinances, 38 municipal ordinances, and 2 airport ordinances. When both a county and local ordinance exist, the most restrictive generally applies.

The trigger for a permit is quite variable. Permits may be required: for all pits, for new pits only, for temporary pits only, for pits on public lands only, for removal of greater than 1,000 cubic yards, upon depletion, for all excavation, when less than 100 feet from a property line, when less than 300 feet from a dwelling, or when reclamation requires greater than 400 cubic yards of fill.

Twenty six counties have issued 306 permits for sand and gravel mining. In most cases, the requirements apply equally to private and public lands, although 6 counties report that ordinances are not applicable to state or federal lands. The permit is most often issued to the landowner. Permits may also be issued to the lessee, the operator, or a combination of lessee, operator, or landowner.

Permits may or may not deal specifically with reclamation. Often active mining issues are the subject of the permit and reclamation is listed as a special condition. Long-term maintenance of the site after mining ceases is generally not considered. Only 8 counties reported provisions for long-term maintenance. When it is required, the landowner is most often responsible.

The survey asked the counties without specific ordinances for sand and gravel mining to assess the need for one. Forty-eight responded to the question. Of those, 19 expressed a need,
25 said there was no need, and 4 were uncertain.

The survey also asked the counties to assess the need for a state law addressing reclamation of sand and gravel pits. The counties that responded (67) were almost equally divided as to the need. Thirty-three counties said that a program was necessary to establish uniform statewide standards but the program should be enforced at the local level. Several counties commented that such a program would require additional staffing and funding. Twenty-nine counties said that a program was not necessary and 5 were uncertain. The reason most often cited was that the county programs already in effect are doing an adequate job.

The survey further questioned what level of government should be responsible for implementing such a state law, if one were enacted. Thirty-five counties felt that either the county or the local unit should be responsible, 25 the state, 4 for local and county jointly, and 3 for state and county jointly.

The survey asked the 22 counties which collect the Aggregate Material Tax to identify how much money has been set aside in the special reclamation fund for the reclamation of abandoned pits and quarries on public or tax forfeited lands, and how much actual reclamation has been accomplished. The information collected from the 22 counties (see Table 9) indicates that 3 reclamation projects have been conducted (1 in Kittson and 2 in Polk County). Six counties have reviewed their land holdings and determined that no abandoned pits exist on public or tax forfeited lands in the county. These counties have, in accordance with the Aggregate Material Tax law, transferred funds from the reclamation account into their county road and bridge accounts. The total amount of money existing the accounts of counties which have not transferred funds is $485,459. One of these counties indicated plans to reclaim 3 pits. However, the majority apparently do not presently have plans to spend these monies.

Part Two of the survey sought an estimate from the counties on the number of sand and gravel pits in their counties. Sixty-nine counties collectively identified 3,422 pits including active, intermittently active, and depleted pits. The sources used for the estimate were numerous and included personal observations, county records, county highway department records, and various maps. Some counties do not have this information readily available and as such were not able to provide a figure.

The counties were further asked to estimate the number of active, intermittently active, and depleted pits. The estimates include 1,263 active pits, 814 intermittently active pits, and 1,110 depleted pits. Note that these figures are merely estimates and should be considered in that context.

Forty-five counties indicated that depleted pits present the greatest reclamation problems because these pits were generally abandoned before ordinances went into effect and the operators are no longer in the area. Twenty-eight identified intermittently active pits as the biggest concern, and 7 listed active pits.

Lastly, the survey asked the counties to refer to a list of possible problems associated with sand and gravel operations and indicate the level of concern (low, moderate, high) with each issue. Issues included safety, noise, dust, traffic, dumping, intermittent mining activity, unauthorized use, and need for restoration. Other issues identified by the counties were groundwater, blasting, water use, aesthetics, noise, smell, smoke, bituminous plants, hours, erosion, and proximity to roads and property lines.

Most counties felt that the issues listed were of low or moderate concern. For example, 56 counties of 66 responding identified safety as low or moderate concern. Only 10 identified it as a high concern. This trend was evident for all the issues listed. Of the issues, dust and traffic were identified by more counties than any other as high concern. Nineteen counties reported safety and dust as high concern with 48 and 49 respectively indicating low or moderate concern.

Several conclusions may be drawn from the survey results: 1) although most counties do not have specific ordinances regulating sand and gravel, most have some vehicle like the conditional use permit to cover sand and gravel concerns; 2) most counties view issues associated with sand and gravel mining of low or moderate concern; and 3) depleted and intermittently active pits were identified by the counties as presenting the greatest reclamation concern.

FIGURE 2. STATE SURVEY ON SAND & GRAVEL PIT RESTORATION

1. **Does your state have a state law or program regulating the restoration of sand and gravel pits?**

   41 states responded

   yes 26 states *no* 15 states

2. **Please send a copy of the state law to the address on the opposite side of this form and indicate when the law was adopted.**

   date adopted: variable

3. **Do local units of governments within your state have ordinances regulating the restoration of sand and gravel pits?**

   yes 18 states *no* 16 states *no response* 7 states

4. **How many permits (state and/or local) have been issued in your state for sand and gravel pit restoration?**

unknown	18 states	*1,000-1,999*	3 states
0-500	16 states	*2,000-2,999*	2 states
500-999	2 states	*>3,000*	1 states

5. **Please estimate the number of sand and gravel pits in your state including permitted, nonpermitted, depleted, intermittently active, and restored pits.**

unknown	12 states	*1,000-1,999*	2 states
<500	8 states	*2,000-2,999*	6 states
500-999	8 states	*>3,000*	6 states

6. **Does your state have a state law or program regulating other industrial minerals?**

   yes 30 states *no* 11 states

TABLE 7. RESULTS FROM THE NATIONAL SAND & GRAVEL SURVEY

	State Regulations		Local Regulations		Number of Pits in State
	yes	no	yes	no	
Alabama		x		x	100
Arizona		x			unk
Arkansas	x				unk
California	x		x		unk
Colorado	x			x	2,000
Connecticut		x	x		2,000
Delaware		x		x	30
Florida	x		x		140
Georgia	x				175
Idaho					
Illinois	x		x		unk
Indiana		x	x		500
Iowa	x			x	2,000
Kansas		x		x	2,300
Kentucky	x		x		35
Louisiana					
Maine	x				unk
Maryland	x			x	500
Massachusetts		x	x		2,000
Michigan		x	x		8,500
Minnesota		x	x		3,422
Mississippi					
Missouri	x		x		unk
Montana	x			x	4,500
Nebraska		x	x		unk
Nevada		x			unk
New Hampshire	x		x		unk
New Jersey					
New Mexico		x		x	850
New York	x		x		4,500
North Carolina	x			x	700
North Dakota	x			x	1,000
Ohio			x		unk
Oklahoma	x				3,085
Oregon	x		x		500
Pennsylvania	x			x	750
Rhode Island		x	x		unk
South Carolina	x			x	300
South Dakota	x		x		2,500
Tennessee		x		x	50
Texas		x		x	775
Utah		x	x		unk
Vermont	x				unk
Virginia	x		x		325
Washington	x			x	2,000
West Virginia					
Wisconsin					
Wyoming	x			x	875

FIGURE 3. RESULTS FROM A STATEWIDE COUNTY SURVEY ON SAND AND GRAVEL PIT RESTORATION

Part 1: Local Zoning Ordinances Relating to Sand and Gravel Pit Restoration

1. Does your county have a specific ordinance regulating the restoration of sand and gravel pits?

70 counties responded as follows:

no: 39 counties

yes: 30 counties

pending: 1 county

2. Please attach a copy of the county ordinance and indicate when it was adopted.

Dates adopted range from 1967 to 1987.

3. Do local units of governments within your county have ordinances regulating the restoration of sand and gravel pits?

70 counties responded as follows:

no: 47 counties

yes: 20 counties uncertain: 3 counties

a. Approximately how many local ordinances are there and what type (township, municipal, etc.)?

22 counties reported the following number and types of local ordinances:

Municipal: 38 Township: 66 Airport: 2

b. When both a county and local ordinance exist, which ordinance takes precedence?

30 counties responded as follows:

county 6 local ordinance 10 other (most restrictive) 10 both 4

4. Do county or local ordinances require that a restoration permit be obtained for sand and gravel operations?

62 counties responded as follows:

no: 32 counties

yes: 30 counties

a. Under what circumstances is a restoration permit for sand and gravel operations required in your county?

Counties listed the following circumstances: all pits, new pits only, temporary pits only, pits on public lands only, removal of greater than 1,000 cubic yards, upon depletion, all excavation, less than 100 ft from property line, greater than 300 ft from dwelling, when restoration requires less than 400 cubic yards fill.

b. How many permits have been issued in your county for sand and gravel pit restoration?

26 counties reported issuing 306 permits

c. Do permitting requirements apply equally to private and public lands?

46 counties responded as follows:

yes: 40 counties

no: 6 counties (Explanation: not applicable to state or federal lands)

d. To whom is the permit issued?

44 counties responded as follows:

landowner 24 lessee 2 operator 2 all three as needed 1

14 counties wrote in the following:

landowner/lessee 6 landowner/operator 7 whoever applies 1

e. Does your permit have provisions for long-term maintenance following restoration of a pit?

44 counties responded as follows:

no: 36 counties

yes: 8 counties

If yes, who is responsible?

landowner 8 lessee _____ operator 1 other (explain) _____

5. **If your county does not have a specific ordinance on the restoration of sand and gravel pits, is one necessary? Explain.**

48 counties responded as follows:

YES: 19 counties
Comments: Needed for Mn/DOT pits; to ensure safety and reclamation; to prevent illegal dumping; for more uniform enforcement.

NO: 25 counties
Comments: Handled adequately by conditional use permit; sand and gravel pits are not a serious problem; metro area lands have a value that encourages reuse of the property.

UNCERTAIN: 4 counties

6. **For the counties collecting revenue under the authority of the Aggregate Material Tax (Minn. Stat. 298.75), how much has been set aside for sand and gravel pit restoration?**

Twenty two counties reported a total of $485,459 in the restoration fund

a. How has your county used these restoration funds?

Three projects have been completed: 1 in Kittson county and 2 in Polk county.

7. **Based on your experience, is there a need for a state law addressing restoration of sand and gravel pits on state-wide basis? Explain.**

67 counties responded as follows:

YES: 33 counties
Comments: State law would give more authority to local communities for reclamation. Provide a program for counties with no ordinance. Provide more uniform reclamation across the state.

NO: 29 counties
Comments: Each county resource varies. More efficient to control at local level. Current regulation is adequate.

UNCERTAIN: 5 counties

8. **What level of government should be responsible for implementing such a state law, if one were enacted?**

67 counties responded as follows:

local unit 12 counties county 23 counties state 25 counties

state/county 3 counties local/county 4 counties

Comment: A program similar to Shoreland Management would be helpful.

Part 2: County Inventory of Sand and Gravel Pits

9. How many sand and gravel pits have been developed in your county on both public and private lands? Please indicate the sources used to determine this number.

69 responded to this question. Of those, 6 could not provide an estimate. The remainder, 63 counties, reported a total of 3,422 sand and gravel pits. The sources used by the counties for this estimate were numerous and included personal observations, county records, various maps and inventories.

10. If possible, estimate the number of active, intermittently active, and depleted pits.

61 counties responded as follows:

active	1,263 pits
intermittently active	814 pits
depleted	1,110 pits

11. Which class of pits present the greatest restoration problems for your county? Why?

60 counties responded as follows:

active	7 counties
intermittently active	28 counties
depleted	45 counties

Comments:

12. The following is a list of possible problems associated with sand and gravel operations. Please indicate, based on your county's experience, the level of concern with each issue by circling the appropriate number.

	LOW	MODERATE	HIGH
safety	31 counties	25 counties	10 counties
noise	39	18	10
dust	21	27	19
traffic	24	25	19
dumping of trash	28	24	13
intermittent mining activity	38	22	3
unauthorized use	45	16	5
need for restoration	18	30	18

The following were written in by the counties:

	LOW	MODERATE	HIGH
groundwater	0 counties	0 counties	4 counties
blasting	0	0	2
water use	0	1	1
aesthetics	0	0	1
noise, smell, smoke	0	0	1
bituminous plants	0	1	0
hours	0	1	0
closeness to road	0	0	1
closeness to property line	0	0	1
erosion	0	0	1

TABLE 8. RESULTS FROM THE COUNTY SAND & GRAVEL SURVEY

	County Ordinance		Municipal Ordinances	
	yes	no	yes	no
Aitkin				
Anoka		x		x
Becker *				
Beltrami				
Benton *		x		x
Big Stone *		x		x
Blue Earth	x		x	
Brown	x		x	
Carlton				
Carver *	x		x	
Cass		x	x	
Chippewa		x		x
Chisago		x		x
Clay *		x		x
Clearwater	x			x
Cook		x		x
Cottonwood				
Crow Wing		x		x
Dakota *		x	x	
Dodge		x		x
Douglas		x		x
Faribault	x			x
Fillmore				
Freeborn	x			x
Goodhue	x		uncertain	
Grant				
Hennepin *		x	x	
Houston	x		x	
Hubbard		x		x
Isanti		x		x
Itasca		x		x
Jackson	x			x
Kanabec		x	x	
Kandiyohi	x		x	
Kittson *				
Koochiching	x		x	
Lac Qui Parle		x		x
Lake	x			x
Lake of the Woods		x		x
Le Sueur *		x		x
Lincoln		x		x
Lyon	x			x
McLeod		x		x
Mahnomen *		x		x
Marshall *		x		x
Martin				
Meeker	x			x
Mille Lacs	x			x
Morrison	x			x
Mower	x		x	
Murray	x			x
Nicollet	x			x
Nobles	x			x
Norman *		x		x
Olmsted	x		x	
Otter Tail		x	uncertain	
Pennington *		x		x
Pine		x	x	

TABLE 8. RESULTS F ROM THE COUNTY SAND & GRAVEL SURVEY (continued)

	County Ordinance		Municipal Ordinances	
	yes	no	yes	no
Pipestone		x		x
Polk *				
Pope				
Ramsey *		x	x	
Red Lake *		x		x
Redwood	x			x
Renville		x		x
Rice	x			x
Rock	x			x
Roseau				
St. Louis		x	x	
Scott *	x			x
Sherburne *	x		x	
Sibley *				
Stearns *		x	x	
Steele		x	x	
Stevens		x		x
Swift	x			x
Todd				
Traverse		x		x
Wabasha		x	uncertain	
Wadena	x			x
Waseca				
Washington *	x		x	
Watonwan		x		x
Wilkin *		x		x
Winona				
Wright	x		x	
Yellow Medicine				

* These counties collect the Aggregate Material Tax.

TABLE 9. AMOUNT IN THE RECLAMATION FUND COLLECTED THROUGH THE AGGREGATE MATERIAL TAX

County	Dollars in Fund	Dollars Expended
Becker	14,400	0
Benton*	0	0
Big Stone	29,531	0
Carver*	0	0
Clay	115,037	0
Dakota*	0	0
Hennepin*	0	0
Kittson	21,979	673
Le Sueur*	0	0
Mahnomen	2,319	0
Marshall	10,503	0
Norman	21,547	0
Pennington	8,460	0
Polk	- 28,717 **	42,000
Ramsey	26,918	0
Red Lake	9,269	0
Scott	111,864	0
Sherburne	49,619	0
Sibley	2,551	0
Stearns	49,428	0
Washington*	0	0
Wilkin	12,034	0
TOTAL	485,459	42,673

* These counties indicated that there are no abandoned pits on public or tax forfeited lands.

** This figure represents a $28,717 deficit in Polk County.

5. FACTORS AFFECTING RECLAMATION

The purpose of this section is to identify the major factors affecting reclamation which were observed during site visits, collected from surveys and literature review, or were presented by task force members and others during meetings. This is not intended to be an exhaustive or exclusive list of factors.

Resource

- Occurrences of sand and gravel range from scarce to abundant within broad regions of the state.
- Economic deposits of sand and gravel are often surrounded by lower grade uneconomic resource.
- Technologic advancements can change low grade resource into economic deposits.

Mining Activities

- There are several nuisance factors often associated with active sand and gravel operations including dust, noise, traffic, and hours of operation. These are usually addressed through various permits and ordinances.
- The cyclic operating nature of sand and gravel pits often results in extended periods of inactivity.
- For intermittently active pits, periods of activity are short compared to the periods of inactivity. Interim reclamation measures are generally not taken during periods of inactivity. Dumping and unauthorized use are problems.
- Depleted pits are of most concern in terms of dumping, unauthorized use, safety, and need for reclamation.

Safety and Environmental Impacts

- Sand and gravel pits often have highwalls.
- Upon abandonment and during periods of inactivity, pits can fill with water.
- Erosion, if not controlled, can cause sedimentation problems and increase suspended solid loads in streams or lakes adjacent to pits.
- Ground water pollution is also a concern in pits that are highly permeable.

Regulations

- No comprehensive sand and gravel regulatory program currently exists at the state level.
- Regulation of sand and gravel pits is handled at the local unit of government. Most counties do not have a special ordinance governing sand and gravel pits. Several counties do not regulate sand and gravel pits in any way. Some cities and townships regulate in lieu of the county.
- Regulation of sand and gravel is often through the conditional use permit. Conditions may be subjectively applied and may or may not address reclamation concerns.
- Regulation varies widely from county to county and from municipality to municipalilty.
- Monies for enforcement of local regulations are often limited.
- Some local units rely on bonding to ensure compliance with regulations, however, bonding is difficult for operators to obtain.

- Often state-owned and operated pits are not regulated by local units of government.
- Intermittently active pits are not always covered through permitting procedures.
- Regulations do not often apply to depleted pits because these pits were generally abandoned before regulations went into effect. Operators are no longer available to perform reclamation.
- Dumping is a chronic problem among all types of pits, particularly intermittently active and depleted pits.
- Small operators and mobile crusher operators may have difficulty complying with regulations.
- Long-range planning is an important element in reclamation.

Reclamation Costs

- Reclamation costs for sand and gravel pits are difficult to predict and are site specific.

Economic and Management Perspectives

- Reclamation of sand and gravel pits is more likely to occur where other development is occurring.
- Reclamation does not occur because of financial constraints on the operator or landowner.

6. DISCUSSION

The purpose of this section is to present task force findings related to sand and gravel pit reclamation. The basis for this discussion are observations made by the task force, analysis of data collected by the task force, and an analysis of the interactions between the various factors presented in part 5. The discussion is organized according to type of pit: active, intermittently active, and depleted.

Active Pits. The primary issues associated with active sand and gravel pits are those that are a function of active mining. These include hours of operation, traffic, dust, noise, smell, view, and safety. Active sand and gravel operations are usually permitted by a local unit of government. Counties, townships, and cities have the authority to regulate sand and gravel mining and in some instances, permits may be required by one or more of these entities. Active mining issues are most often addressed in the permitting process, through special ordinances relative to sand and gravel mining or through the conditional land use permit. Reclamation of pits after the cessation of mining is also addressed through permitting, most often as a special condition in a conditional land use permit.

Although there is great variability among counties, townships, and cities in terms of regulation, it is the consensus of the task force that the local unit is the appropriate level of government to regulate sand and gravel mining. Many counties indicated on the statewide county survey that sand and gravel mining is not a significant problem in their area or that it is effectively controlled through land use planning or ordinances. Other counties that indicated a problem with sand and gravel mining suggest that there is a need by land managers for technical information on reclamation. The task force concurs. The availability of technical information to local units of government, industry, and public agencies that operate sand and gravel pits may eventually lead to more uniform regulation and successful reclamation throughout the state.

Secondary issues associated with active pits are dumping of trash and unauthorized use. These activities usually occur at night or on weekends when the mining operation is shut down. This is not as significant a problem as with other types of pits because the companies often erect fences or barriers to keep the public out. Some companies employ guards to patrol. When dumping does occur, it is usually cleaned up by the mining company.

Intermittently Active Pits. The issues associated with intermittently active sand and gravel pits during periods of activity are similar to those identified for active pits (hours, traffic, dust, noise, smell, view, and safety). The frequency and duration of mining activity depends on many factors. Pits that are close to new road or building construction are generally more active. Adjacent landowners often complain that intermittent pits become active with no advance warning. At intermittently active pits the duration of activity is short compared to the periods of inactivity.

Regulation of mining activity at intermittently active pits is a complicated issue. Intermittently active pits are most often used by mobile crushing operations. These operators are frequently not required to obtain permits or are unaware of applicable permits. Enforcement of regulations is difficult due to the short-term nature of mining. A complicating factor is that multiple operators may operate in the same pit at different times over a relatively short span of time. It is difficult to define responsibility in these situations. Operators also point out that the time frame for the permitting process is too lengthy to allow them to be competitive. Construction projects require aggregate on short notice. Contractors need to be prepared to fill orders on short notice as well. The permitting process can take up to several months to complete.

When an intermittently active pit is idled, interim reclamation measures are usually not practiced. The need for interim reclamation is an issue. Operators claim that jobs are too competive to bear the added expense of interim reclamation. Some counties require that interim reclamation measures for safety and aesthetic purposes be taken when mining ceases.

Illegal dumping was identified in the statewide county survey as a significant problem in intermittently active pits, primarily during periods of inactivity. Dumping of demolition material appears to be a problem as well, especially in pits located proximate to populated areas. Dumping is a problem that only gets worse once it has started. When a pit has become established as a dump site, it is difficult to reverse the trend. Unauthorized dumping is illegal but difficult to enforce without 24 hour surveillance.

Another significant problem is unauthorized use of intermittently active pits. Unauthorized uses include: parties, target shooting, off road vehicle use, swimming, and agate collecting among others. These activities are a liability concern and a nuisance for landowners and operators alike. Safety is also an important issue. Intermittently active pits may be left in an unsafe condition for long periods of time. Hazards include dangerous highwalls, pools of deep water, and inactive equipment.

Depleted Pits. Regulations generally do not apply to sand and gravel pits if they were depleted or abandoned before the effective dates of applicable rules or ordinances. Many of the depleted pits in Minnesota were abandoned before county or local ordinances were in effect. As for intermittently active pits, abuse of depleted pits is through illegal dumping and unauthorized use. Safety is also a concern since depleted pits may have dangerous highwalls, deep pools of open water or other hazards that pose safety and liability concerns.

The need for reclamation of intermittently active and depleted pits was identified by the task force as a priority concern. Previous operators are often no longer in the area so the cost for reclamation of these pits becomes the responsibility of the landowner or the public in the case of tax forfeited pits. There is usually no economic incentive for cleaning up depleted pits and so the status quo is maintained.

To resolve this problem, the task force concluded that local units of government were in the best position to idenfity problem pits and to incorporate the needs of the community into any specific reclamation design. In addition, potential sources of funding were discussed which could be directed at solving the problem. Two funding sources were discussed by the task force.

The first possible source of funding that was explored was the currently existing Aggregate Material Tax. This tax was identifed since a portion of the funds that are collected (10%), are already directed at reclamation efforts on abandoned pits and quarries located on public or county tax-forfeited lands. However, because of the land ownership restrictions of the law, and the fact that few abandoned pits exist on these types of land in the counties which collect the tax, very little of the money has been spent on reclamation. A further restriction of this funding source is that not all counties have opted to collect this tax. In fact, a majority of the counties, 65 to be exact, have determined that projected aggregate production would not yield enough tax revenue to pay for administration of the tax.

The task force had several discussions on possible amendments to make the Aggregate Material Tax more effective in providing reclamation at abandoned pits. The idea of assigning a larger portion of the tax to reclamation was discussed, but was abandoned because this would only take monies from other programs which are also necessary. Making the tax applicable in all counties was discussed, but also abandoned since the limited production of aggregate in many counties would not yield much money and administration costs may equal or exceed revenues collected. Ultimately, the task force agreed that no recommendations should be made regarding amendments to the Aggregate Material Tax.

A second major concept of funding would require that a special program be developed by the state to make funding available for the reclamation of abandoned sand and gravel pits. Such a program would be similar to many new programs which the state has recently developed that are designed to return currently unproductive land to a more productive and beneficial use. The task force has recommended that a subsequent group be assigned the task of investigating how such a program might be developed, including criteria for determing which land might be eligible, the types of reclamation efforts that would be accepted, and sources of funding that might be made available.

7. RECOMMENDATIONS

1. Authority for regulation of sand and gravel pits in Minnesota is currently held by local units of government. There is variability among local units in terms of the regulation of sand and gravel pit reclamation. In most cases, regulation of the active mining issues such as noise, hours of operation, and compatibility with local land use appears to be effectively conducted by the local unit. The task force believes that state regulation of sand and gravel pit reclamation is unnecessary at this time but that local units of government should be encouraged to make reclamation a higher priority through their current regulatory system.

2. There is a need for basic information on sand and gravel pit reclamation by industry, local units of government, and public agencies that operate sand and gravel pits. Currently, there is no centralized location for such information. The task force recommends that a library on sand and gravel pit reclamation and regulation be developed.

3. The task force recommends that the information collected for the library be summarized in the form of a technical manual on sand and gravel pit reclamation. The manual would be distributed to industry, local units of government, and public agencies that operate sand and gravel pits.

4. The task force recommends an evaluation of means by which this reclamation information could be implemented by local units of government and public agencies that operate sand and gravel pits. Possible means of implementation identified by the task force include but are not limited to:

- The distribution of technical information for voluntary use by industry, local units of government, and public agencies that operate sand and gravel pits.
- The development of model ordinances on reclamation for voluntary use by local units of government.

5. Data collected from the statewide county survey conducted by the task force identified approximately 1,111 abandoned pits across the state (the total number of active, intermittently active, and abandoned pits identified in the survey is 3,422). In the survey, counties indicated that abandoned pits are of the greatest concern from a reclamation standpoint. Abandoned pits are difficult to reclaim because mining was often conducted before regulations were enacted and the landowner/operator is frequently no longer in the area.

To address the concern of abandoned pits, the task force recommends the establishment of a matching grant program for the reclamation of abandoned sand and gravel pits by local units of government. Such a program would include the identification of funding sources and the development of qualifying criteria.

Funding sources for the matching grant program may include but are not limited to the: Environmental Trust Fund, General Fund, funds in the special reclamation fund collected through the Aggregate Material Tax, and potentially new sources of funding centering around groundwater protection legislation. The matching grant program could be maximized by working in cooperation with existing programs such as the Clean Water Partnership, Celebrate 1990, Star City Program, Minnesota Beautiful, and Reinvest In Minnesota (RIM).

6. To accomplish the recommendations outlined above, the task force recommends that funding be sought in the 1989 legislative session through the Minerals Coordinating Committee budget (the Minerals Coordinating Committee or MCC was established in 1987 by the legislature) for a two-year biennial project.

Project responsibilities include:

- development of a library on sand and gravel pit reclamation and regulation;
- preparation of a technical manual on sand and gravel pit reclamation;
- distribution of technical information to industry, local units of government, and public agencies that operate sand and gravel pits;
- evaluation and recommendation of means by which technical information on reclamation could be implemented by local units of government and public agencies that operate sand and gravel pits; and
- development of a matching grant program for funding reclamation projects in abandoned sand and gravel pits.

The DNR will be designated as the project manager. Funding for a DNR position will be part of the appropriation request. The task force recommends that the Minerals Coordinating Committee appoint a reclamation subcommittee from the existing Industrial Minerals Advisory Committee to serve in an advisory capacity to the DNR. Membership of the new reclamation subcommittee should be expanded to include representatives from the Association of Minnesota Counties, Association of Minnesota Townships, League of Minnesota Cities, industry (large, small, metropolitan, and outstate operators), and applicable state agencies.

7. The task force could not reach a consensus regarding potential amendments to the Aggregate Material Tax. Therefore, the task force recommends no change to the Aggregate Material Tax at this time.

8. The task force identified illegal dumping as a concern in sand and gravel pits. The task force further recognizes that regulation and reclamation of sand and gravel pits through local zoning ordinances reduces the attractiveness of these sites for illegal dumping. However, these measures alone will not eliminate illegal dumping. The task force endorses more aggressive enforcement of existing laws prohibiting dumping; comprehensive solid waste and recycling legislation; programs such as Clean Sweep and Household Hazardous Waste Collection; community clean-up and trash collection days; and education and public awareness programs at the local level on procedures and locations of authorized waste disposal sites.

APPENDIX A. MEETING MINUTES

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, January 20, 1988
9:00 AM - 12:00 PM
Ramada Inn - St. Paul

PRESENT:

Bob Bogard	Granite City Ready Mix
Dick Smith	Oscar Roberts
Warren Pladsen	MnDOT
George Durfee	State Planning Agency
Gary Botzek	Aggregate Ready Mix Association
Joan Galli	DNR-Wildlife
Frank Ongaro	DTED-Minnesota Beautiful
Orlyn Olson	IRRRB
Emmett Duffy	MnDOT
Arlo Knoll	DNR-Minerals
Cindy Buttleman	DNR-Minerals
Julie Jordan	DNR-Minerals
Paul Pojar	DNR-Minerals

DISCUSSION

Abandoned pits: Permanent pits are not usually the problem because the operator is under some type of permit. The biggest problems are with inactive pits, especially those located on farms and other private land. Another problem is with short-term users like crusher operators and road contractors. In both cases, the site is often left with no effort at reclamation. The site inevitably becomes an informal junkyard. Problems are most common in areas where there is an abundance of resource-namely central MN.

Problems: Aesthetics is the primary concern with gravel pits. Safety is secondary. Gravel pits are rarely permanently abandoned due to the nature of the resource deposition. Companies are reluctant to spend additional money shaping and vegetating when the pit is only temporarily inactive. It is therefore difficult to define an abandoned pit.

In addition, the landforms that remain after mining are variable. Reclamation for a hole that fills with water is relatively easy and inexpensive. But when mining creates a pit with pitwalls, reclamation is quite different.

There is also a wide variability in aggregate. Class 5 aggregate for road building is much different than cement aggregate. A pit may be useful for one purpose but not for another.

MnDOT: MnDOT is one of the biggest users of aggregate for road construction. They generally lease or own their pits according to the following.

1) aggregate deposits leased from a private landowner-the resource is not developed.
2) aggregate deposits leased from a private landowner-the resource is developed.
3) aggregate deposits developed on MnDOT owned land.

Reclamation of these pits is addressed in the MnDOT spec book-"leveling pit bottoms, sloping and cleanup is required to the satisfaction of the district engineer." However, there are no standards by which the engineers can make their evaluation. Consequently, there is a lot of variability in what is done. Approximately 50 to 60 MnDOT pits have been depleted and about 35 transferred to DNR for wildlife management. MnDOT often uses inactive pits for equipment storage. MnDOT maintains aggregate location maps by county but there appears to be no good inventory of the small borrow pits.

Gravel tax: 26-27(?) counties have the authority to levy aggregate material production tax. The funds collected are allocated as follows:
60% to county road & bridge fund
30% to town & city road & bridge fund as determined by the board
10% special reserve fund for the restoration of abandoned pits, quarries or deposits on public or tax forfeited lands within county

Sherburne and Stearnes counties each have over $40,000 set aside but have not yet spent any money. The law is subject to wide interpretation.

Incentive programs: A positive way to accomplish cleanup of old pits

1) Create incentives for cleaning up privately owned pits-like RIM Programs where farmers receive stipend for cleanup.

2) Amend gravel tax so that monies in the reserve fund can be applied for by the private landowner.

3) Working through AMC (Association of Minnesota Counties) and possibly MICA (Metro Inter County Association), establish uniformity among counties on how gravel pits are regulated.

4) Awards and rewards offered through Minnesota Beautiful program

5) Star city of star county concept-checklist approach: Does county have an ordinance relating to aggregate mining?

6) Formation of a advisory group operated through AMC that counties can use at no cost for reclamation advice.

8) Adopt minimum standards for counties-through AMC

9) Establish a point system for LAWCON grants in Minnesota Beautiful program

DNR-wildlife concerns: DNR receives calls when inactive pits are reactivated and wildlife is disturbed. Another concern is preserving remnant prairies (western MN) on sand and gravel deposits. Also concerned about species that colonize after revegetation (swallow, fox, etc.)

Regulatory authority: Counties have historically regulated sand and gravel operations. If a city is involved, then the city governs. Concensus among group that regulation should be maintained at the county level. The problem is that there is no consistency among counties on regulations. An extreme example is Sherburne vs. Benton. Sherburne has an elaborate regulatory ordinance but Benton has decided not to regulate. The industry is generally in favor of uniform regulations so that every company is treated similarly.

GOVERNOR'S DIRECTIVE

We need better definition from the Governor. What specific pits is he talking about? DNR will pursue through the commissioner.

Is task force to consider changes in legislation?

SUGGESTED ADVISORS/OTHER MEMBERS ON THE TASK FORCE

Rudy Hoagberg
Ray Lappegaard
Morris Eng

MN Asphalt Pavers Association-Dave Holt
MN Concrete Pavers-Dave Frentess
Brian Benson-Sherburne county zoning administrator
Metro Council
Senator Bob Schmitz (chair, local & urban affairs committee)
Representative Dave Battaglia (chair, local & urban affairs committee)
Doug Johnson, need to consult if there are amendments to gravel tax law

ACTIVITIES FOR TASK FORCE

Tours of mining facilities
Literature search
Possible speakers:

gravel tax-Ray Lappegaard
Sherburne county ordinance-Brian Benson
geology-Rudy Hoagberg

DNR will put together meeting minutes and an information packet to be distributed to other members.

NEXT MEETING

Wednesday, February 17, 1988, 9 am - 12 pm, place to be announced.

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, February 17, 1988
9:00 am - 12:00 pm
DNR Building - St. Paul

PRESENT:

Emmett Duffy	MnDOT
Warren Pladsen	MnDOT
Bob Cupit	State Planning Agency
Orlyn Olson	IRRRB
Frank Ongaro	DTED - Minnesota Beautiful
Mark Gustafson	Minnesota Beautiful
Gary Botzek	Aggregate Ready Mix Association
Dick Smith	Oscar Roberts Concrete Products
Bob Bogard	Granite City Ready Mix
Sen. Bob Schmitz	Chm.-Local and Urban Government Comm.
Ray Nyberg	DNR-Waters
Dick Rossman	DNR-Forestry
Arlo Knoll	DNR-Minerals
Cindy Buttleman	DNR-Minerals
Julie Jordan	DNR-Minerals

TASK FORCE MEMBERSHIP: UPDATE AND DISCUSSION

It was agreed that a small operator should have representation on the Task Force. Suggestions included:

Stommes (ARM member)
Shoe: crusher operator
Lundeen: Guarantee Sand and Gravel, Mankato

The Department will be responsible for contacting these individuals.

It was decided that the Task Force had ample "large" operator representation.

Other possible Task Force members would be County Engineers (Joe Varda, St. Louis Co.) or County Administrators (Dennis Carlson, Benton Co., President-Organization of County Administrators, or Charlie Swanson, Washington Co.). The DNR will contact these individuals to determine their interest and willingness to be Task Force members.

PRELIMINARY ISSUES SUMMARY

How many pits and how many present problems?
A better approach may be to classify types of pits and identify what problems are associated with each type. The counties should have a good estimate of the number of pits and problems associated with them. It was suggested a questionnaire be mailed to all counties asking what the scope of the problem is (number of pits and restoration problems) and what is being done at the county level to address problem pits.

Private owners.
It was stated that permanent pits usually present no problem, as the owner-operator is present and can address ongoing clean-up as well as long term restoration problems. The problems are more likely to occur at small, non-fixed locations involving custom operators. In these instances, the owner and/or operator are often not on site. On the other hand, in some instances, an owner-custom operator trust

relationship develops in which clean-up and restoration activities are successfully accomplished. Another problem area is those pits that were active before conditional use permits were required by the counties.

MnDOT usually has non-exclusive leases with private landowners. This lease agreement assures availability of product for state construction projects and designates the price of the product. The landowner has control over how a contractor leaves the pit, though this is sometimes specified in the lease agreement. MnDOT owns approximately 390 pits in the state, not including borrow pits. These pits are used by MnDOT's maintenance work forces. The MnDOT uses a book titled "Standard Specifications for Construction" for establishing minimum restoration standards for its leased or owned resources. However, enforcement of these standards is left to the discretion of the MnDOT engineer, and these interpretations and results vary district by district.

DNR-Forestry owns over 1,000 pits, all on state land, ranging from borrow pits to permanent pits. They lease to individuals (5 year agreements) for state construction projects. Restoration requirements are written into the lease agreement. A standard requirement is that operations are screened from the road. The DNR does some of its own restoration, also. This may include sloping, planting trees, and establishing the area for wildlife management. Some pits are designated wildlife "openings," with no intention of ever revegetating with trees.

AESTHETICS AND SAFETY

The primary concerns associated with pit restoration are aesthetics and safety. Aesthetics issues include clean-up (removal of debris and junk often left by public) and screening the activity when near highways and homes. Safety issues are related primarily to trespassers who may use the pits for recreation (off-road vehicle workouts, target shooting, swimming, parties, etc.). Sloping of pit walls is often done to reduce the safety hazard as well as provide a more aesthetic land surface.

RESPONSIBLE PARTY FOR RESTORATION

To date the "responsible party" has varied on a case-by-case basis. However, it would appear better to be able to identify one party who is responsible. In Sherburne County that party is the "Permittee"...that is; the individual who holds the conditional use permit is responsible for restoration and must post a bond.

REGULATORY AUTHORITY

All counties have regulatory authority in place, but not all counties devote the same amount of resources to implementing their authority. Some counties may not be regulating because they lack the resources (personnel, funding) to do so. Their income from sand and gravel is too small (unlike, say, Sherburne Co.) to realize any significant gain from it. Thus, they lack financial motivation to enforce regulations.

There is no need for distinction between public and private ownership of a pit -- all should have minimal restoration requirements in all areas of the State.

It was agreed that regulation should be at the county level, although minimum standards could be enacted state-wide to ensure uniformity between counties.

FINANCIAL INCENTIVES FOR RESTORATION

Production Tax Fund

It would be best not to pursue expanding the list of counties covered by the tax. However, it may be reasonable to pursue a change in what types of pits can use this money for restoration (i.e. expand to include private). We will also include in our questionnaire to the counties the query if any restoration activities have been conducted by the counties using fund monies.

Other possible financial incentives were discussed and will be pursued by the Task Force. These include:

1. RIM
2. Land and Water Conservation Fund (LAWCON) Grants
3. Governor's 1990 Grant & Loan Matching Program (cleanup activities)
4. SCS Incentives Program
5. Legislative Action

ASSIGNMENTS

Duffy: Can MnDOT deny contract to low bidder?

Pladsen: Obtain copy of MnDOT spec. book for Arlo.

Rossman: What are clean-up standards for small and large operations in Forestry pits? What is the enforcement? Does Lands Bureau have anything to do with it?

Schmitz: Obtain examples of conditional use permits from both Scott and Carver counties.

Ongaro: Research into Governor's 1990 Grant and Loan Matching Program.

Nyberg: Check on SCS incentives program.

Botzek: a. Research the RIM program as an option for pit restoration.
b. Pursue zoning bill introduced by Sen. Betty Atkins (through Sen. Schmitz' committee) to assess possibility of tacking "restoration" onto it. What is the bill's number?

UPCOMING ACTIVITIES

Site visits in June (when road restrictions are off).

Speaker: Dan Svedarsky, U of M - Crookston, will speak on his work in restoration of sand and gravel pits at a future meeting.

DNR will summarize meeting minutes, articulate issues, and put some structure to our discussions...to be distributed.

Next meeting set for Thursday, March 24, 1988, 9:00 am to 12:00 pm, DNR-St. Paul (room to be announced).

MINUTES
Sand and Gravel Task Force Meeting
Thursday, April 21, 1988
9:00 AM - 12:00 PM
DNR Building - St. Paul

PRESENT:

Orlyn Olson	IRRRB
Frank Ongaro	Dept Trade & Economic Development
Bob Lockyear	Washington County Zoning
Robert Schmitz	State Senator
Ray Nyberg	DNR
Terry Bovee	LeSueur County Zoning
Art Poll	LeSueur County Zoning
Bob Bogard	Granite City Ready Mix
Joe Varda	St. Louis County Highway Department
George Durfee	State Planning Agency
Emmett Duffy	Mn/DOT
Arlo Knoll	DNR - Minerals Division
Cindy Buttleman	DNR - Minerals Division
Warren Pladsen	Mn/DOT
Paul Pojar	DNR - Minerals Division
Ken Paulson	MN Asphalt Pavement Association
Carrol Henderson	DNR - Wildlife Division
Dave Heyer	Becker County Engineer
Dan Svedarsky	University of Minnesota (Crookston)
Gary Botzek	Aggregate Ready Mix Association

DISCUSSION FOLLOWING PRESENTATION BY DAN SVEDARSKY

For pits that are above the water table, warm season grasses like big bluestem may be appropriate for restoration. See recent paper in Soil and Water Conservation Journal.

A general discussion of the economic costs for wildlife restoration can be found in the proceedings from the Crookston conference on sand and gravel pit restoration in 1982.

Financing restoration: In LeSueur County, a million dollar bond has been required for Uniman, a silica sand operation.

In Ontario 8 cents/T of mined aggregate is allocated for a reserve fund. Money is refunded at the end of operations if the reclamation is satisfactory, and forfeited if not. See Ontario regulations for more information.

Other Canadian publications of interest: 1) Sand and gravel pit rehabilitation in northern Ontario (Miller and Mackintosh, 1987); and 2) sand and gravel rehabilitation of pits and quarries for fish and wildlife (Michalski, Gregory, and Usher, 1987).

The Iowa Department of Agriculture and Land Stewardship has recently hired a state mine inspector. They are also developing reclamation guidelines for mine operators. Contact: Joe Pille (DesMoines) 515/242-5003.

There is a new wildlife area developed from an abandoned sand and gravel site near Winnipeg that is highly acclaimed.

REVIEW MEETING MINUTES AND PROGRESS REPORTS

Warren Pladsen noted that in the minutes for the February 17th meeting, the sixth sentence in item 3 on page 2 should be amended to read:
These pits are ALSO used by MnDot's maintenance work forces.

UPDATE ON TASK FORCE MEMBERSHIP

New members introduced: Dan Paulson, MN Asphalt Pavement Assn; Joe Varda, St. Louis Highway Department; Bob Lockyear, Washington County Zoning; Dave Heyer, Becker County Engineer; Terry Bovee, LeSueur County Planning; Art Poll, LeSueur County Zoning. John Stommes, representing small crusher operators, was unable to attend this meeting but is willing to serve on the Task Force.

Gary Botzek will followup with the Association of Minnesota Counties to determine their level of future participation. The Task Force would welcome a more proactive role by the AMC.

FOLLOWUP ON ASSIGNMENTS

Duffy: Can Mn/DOT deny contract to low bidder?
Mn/DOT policy requires an award to the lowest "responsible" bidder. He points out that all contractors bid on the same specs so it would be more appropriate to change the spec book rather than the lowest bidder criteria.

Rossman: Absent

Ongaro: Use of 1990 Celebrate Minnesota Grants/loan matching programs.
LAW/CON grants are administered through DEED. Counties have access to the funds by application for LAW/CON grants from DEED. Program probably not viable for cities, possible for counties if the project is large enough.

1990 Celebrate Minnesota Program just passed the 1988 legislative session. It is a 3:1 (proposer:state) matching program with a maximum of $25,000 per community. Could be used for projects up to $100,000.

Other sources of funds for sand and gravel pit restoration projects are local clubs and organizations who use pull tabs. Pull tabs have generated a surplus of revenue for these organizations.

Nyberg: SCS incentive programs.
Resource Conservation and Development Program, originally a federal program but funds are no longer available. Sand and gravel pit restoration would qualify for this program. A project needs a local sponsor, then the program searches for funding. Funding is 50-75% cost sharing. There are several project coordinators in the state. For more information, contact Greg Larsen in Alexandria, 612/763-4733.

Another possibility is the Streambank and Lakeside Program administered by the Soil and Water Conservation Board (part of MN Dept. of Agric.) For sand and gravel pits to qualify, it would have to be demonstrated that the pit is eroding into protected waters.

It was noted that SCS soil survey staff are familiar with sand and gravel pits as a result of their mapping efforts and could contribute to the Task Force. For more information, contact Norm Mofjeld (Marshall County Soil Survey) or Terry Bovee (LeSeuer County Soil Survey).

Botzek: RIM, zoning bill
RIM-see memo from Ray Norrgard. Botzek suggested that Ray Norrgard be added to our interested party mailing list.

Zoning bill died this session but will be back in 1989.

Botzek mentioned that the Environmental Trust Fund associated with the lottery might be a potential source of funding for sand and gravel pit restoration projects in the future.

Production Tax bill: During the 1988 session, a bill was proposed by Senator Randy Peterson to amend the Aggregate Production Tax bill. J.L. Shiely Company initiated the amendment. The amendment would have mandated that all counties (rather than just the 22) collect the tax. It would have also repealed the provision that a portion of the tax be allocated for restoration. Use of the revenue collected from the tax would be up to the discretion of the county board. This bill will be back in 1989.

Other possible sources of funding: Carrol Henderson noted that there are funds available for establishing public shooting ranges in areas like abandoned sand and gravel pits. If an area was designed for this purpose, it would be better mananged. For more information contact Roger Grosslein, DNR Hunter Education.

REVIEW COUNTY SURVEY

After some discussion, it was decided that the survey should be sent to the chairs of the county boards. The survey should be accompanied by a cover letter from the governor describing the purpose of the task force and inviting the county to participate. The chair would receive both the letter and the survey while county zoning administrators and county engineers would receive a copy of the letter. It was suggested that AMC could provide mailing labels. There was a consensus that the survey should be returned within two weeks from the date of receipt. DNR will pursue the letter from the Governor and send out the survey.

The survey will be distributed before mid-May so that the results will be available for the next meeting.

Many good suggestions were made regarding the content and format of the survey. The final copy of the survey will be distributed to task force members with the meeting minutes.

UPCOMING ACTIVITIES

From now until the end of June, the DNR will continue to meet with counties from the various geographic regions of the state to obtain specific information on local ordinances for sand and gravel pit restoration. Site visits to sand and gravel operations will also be scheduled. These will probably be conducted by regions. Bogard nominated central Minnesota as the site of the first tour. A schedule will be distributed and all interested task force members are encouraged to attend as their schedules permit. ARM and county engineer's association will assist in planning.

The format for the task force meetings was also discussed. Members felt that speakers and presentations were a good idea. DNR will arrange a speaker schedule.

NEXT MEETING

Thursday, June 16, 1988 from 9 AM to 12 PM was proposed as the next meeting date to be held in the DNR building (St. Paul).

Proposed topic: Panel discussion with county zoning adminustrators and county engineers.

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, June 23, 1988
8:00 AM - 12:30 PM
Sartell City Hall - Sartell

PRESENT:

Ray Nyberg	DNR-Waters
Sue Turner	Barton Sand and Gravel
Linda Schutz	J. L. Shiely Company
Bob Bogard	Granite City Ready Mix
Paul Pojar	DNR-Minerals
Dick Rossman	DNR-Forestry
Frank Ongaro	Minnesota Beautiful
Dave Heyer	Becker County Highway Engineer
Orlyn Olson	IRRRB
Warren Pladsen	Mn/DOT
Julian Empson	MN House of Representatives
Dick Smith	Oscar Roberts Company
Cindy Buttleman	DNR-Minerals

8:00 AM - CALL TO ORDER

INTRODUCTION OF NEW MEMBERS

Several new members were present at the business meeting and at the tour from the preceding day. These include: Julian Empson from Representative Battaglia's Office; Sue Turner, Barton Sand and Gravel; Linda Schutz, J. L. Shiely Company; John Stommes, Stommes Construction Company (Wednesday only).

REVIEW OF MEETING MINUTES AND PROGRESS REPORTS

Linda Schutz was concerned about the comment in the minutes from the April 21st meeting regarding bonding of the Uniman operation in LeSueur county. The minutes should reflect that bonding was not a scheduled topic for discussion at that meeting but rather a comment made during a general discussion on possible sources for financing restoration.

RESULTS OF COUNTY SURVEY

As of the date of the meeting, 43 counties have responded. Of those, 23 have a specific ordinance on sand and gravel, 19 do not. Preliminary results were summarized and distributed.

Linda Schutz observed that few of the metro counties had responded. She speculated that a likely reason may be that regulation of sand and gravel occurs at the township and municipality level. The metro region may be distinct from the outstate region in terms of the size and number of operations in addition to the degree of local regulation. It was suggested that the metro region might be handled differently than outstate. For example, question #7 in the survey dealt with the need for a state-wide regulatory program for sand and gravel operations. Linda suggested that such a program may be appropriate for outstate Minnesota, but that adequate controls are already in place for the metro region.

Some additional tasks remain to complete the survey as follows:

1) Task Force members whose home counties have not yet responded are encouraged to pursue the completion of the survey.

2) The Task Force concurred that a followup letter should be written to the counties who have not yet responded encouraging them to complete the survey. It was suggested a list of counties that have responsed be enclosed with the letter. DNR will followup.

3) DNR will contact the auditors in the 22 counties where the Aggregate Production Tax is enforced to obtain figures on how much money is in their restoration funds and whether any restoration projects have been undertaken.

4) DNR suggested that a survey be distributed nationally to obtain information on other state programs regarding sand and gravel. DNR will followup.

A full report on the survey results will be presented at our next meeting.

UPCOMING ACTIVITIES

Small operators. DNR pointed out the difficulties that small operators have in participating in the Task Force meetings. Their participation is imperative in order to give us a complete perspective on the sand and gravel industry in our state. Several small operators have suggested that the best way to achieve small operator participation is to meet with them at their work locations. DNR will try to schedule a few site visits with small operators before our next meeting and report findings.

Another suggestion discussed at an earlier meeting is to schedule a panel discussion of small operators during a Task Force meeting. DNR will try to schedule a panel discussion for a future meeting.

Report schedule and format. According to our schedule, the Task Force's final report is due to the Governor in November 1988. It was agreed that we need to begin focusing our attention on the report. At our next business meeting, we will devote a large part of our time to a discussion on the content of the report, gaps in existing information, and any new information we may need in order to begin work on the report.

Metro field trip. Because of the differences between the metro and outstate, the Task Force feels that a tour of metro area sand and gravel operations is appropriate. It was suggested that our next business meeting be held in the metro area and combined with an optional tour of several local sand and gravel operations. Sue Turner and Linda Schutz volunteered their companies as hosts. DNR will assist. Proposed date is Wednesday, July 20th, at 9:00 AM in the metro area. Details will be forthcoming.

COMMENTS ON ST. CLOUD FIELD TRIP.

The response to the field trip was good. Approximately 20 people participated in the field trip on June 22nd and about 14 on June 23rd. In general, the participants felt that the tour gave the Task Force a sense of the issues surrounding sand and gravel in the outstate areas of central Minnesota. It also gave us a perspective on the various approaches counties use to regulate the industry. However, we need some additional information on the forested areas in the state and the unique circumstances those counties face. Several Task Force members are from the northern part of the state. They will consider various ways in which to bring the northern Minnesota perspective to the Task Force.

Regarding the St. Cloud tour, the Task Force wishes to gratefully acknowledge the many people who contributed their time and resources. These include: Brian Benson, Sherburne County Zoning Administrator; Doug Weiszhaar, Stearns County Engineer; Marv Stransky, Stearns County Highway Superintedent; Don Vry, Meridian Aggregate Company; Dennis Carlson, Benton County Engineer; Al Barthelemy, Benton County Zoning Administrator; Les Peterson, archaeologist from Minnesota Historical Society; Bill and Steve Crystal, Crystal pit crushing operation; and Bob Bogard, Granite City Ready Mix.

OTHER ACTIVITIES

Speaker: Les Peterson
Crushing operation: Crystal pit
Ready Mix plant: Granite City Ready Mix

12:30 PM ADJOURN

NEXT MEETING TIME AND PLACE

Business Meeting: Wednesday, July 20, 1988, 9:00 AM (Metro area: location to be announced)
Metro Field Tour: 11:00 AM to 4:00 PM

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, July 20, 1988
11:30 AM - 1:30 PM
J. L. Shiely Company Conference Room

PRESENT:

Orlyn Olson	IRRRB
Frank Ongaro	Dept. Trade & Econ. Development
Senator Bob Schmitz	MN Senate
Gary Botzek	Aggregate Ready Mix Association
Terry Bovee	LeSueur Co. Planning & Zoning
Emmett Duffy	MN/DOT
Ray Nyberg	DNR-Waters Division
Warren Pladsen	MN/DOT
Paul Pojar	DNR-Minerals Division
Dick Smith	Oscar Roberts Company
Julian Empson	MN House of Representatives
Ken Paulson	MN Asphalt Pavement Association
Sue Turner	Barton Sand & Gravel
Harlan Van Wyhe	City of Maple Grove
Linda Schutz	J. L. Shiely Company
Cindy Buttleman	DNR-Minerals Division
Bob Lockyear	Washington County Planning
Dave Holt	MN Asphalt Pavement Association

11:45 AM - Call to Order

REVIEW OF MEETING MINUTES AND PROGRESS REPORT

No comments or corrections noted.

UPDATE ON COUNTY SURVEY

As of the meeting, 47 counties have responded. Preliminary results were distributed to interested Task Force members. The DNR recently sent out a followup letter to the 40 counties who have not responded requesting their cooperation. Task Force members whose home counties have not yet responded are reminded to pursue completion of the survey. The DNR will continue contacting auditors in the 22 counties that collect aggregate production taxes to compile figures on the amount of funds that have been earmarked for pit restoration in those counties.

UPDATE ON NATIONAL SURVEY

At the last meeting, it was agreed that a survey should be distributed to states to obtain information on regulatory programs pertaining to sand and gravel operations. DNR prepared a one-page survey that was distributed nationally. To date, about 20 states have responded.

REPORT PREPARATION

The Task Force report to the Governor is due in November 1988. DNR offered, as secretary to the Task Force, to prepare a draft report based on the meeting records and on information compiled by the Task

Force. The draft report would be distributed for review to members. The Task Force concurred that this approach would be the most expeditious manner in which to complete the report.

REPORT CONTENT AND OUTLINE

DNR distributed a draft report outline to facilitate discussion at the Task Force meeting. Discussions followed for each of the chapters highlighted on the outline. Many good suggestions were made by Task Force members. Additions and revisions to the outline have been incorporated in the revised outline which is attached.

Background information for the report was discussed in detail and members agreed that it will not require extensive further discussion. However, it became obvious that more discussion is necessary regarding the issues, solutions and recommendations portion of the report. DNR will draft some language for these sections, perhaps in outline format, as a basis for discussion at our next meeting.

Some of the points raised during discussion of issues, solutions, and recommendations are as follows:
1. Sand and gravel is a diminishing, non-renewable resource.
2. Positive incentives (RIM, star city concept, celebrate 1990, etc) could be employed to clean up abandoned or depleted pits.
3. Regulations at the county or local level could be used to regulate active or intermittently active pits.
4. Existing laws on dumping could be enforced or possibly strenghthened.
5. Permitting and environmental regulation for sand and gravel operators is often complicated.

To allow adequate time for preparation of the draft report by DNR and review by Task force members, the next meeting will be on September 21, 1988 from 9:00 AM - 12:00 PM in the DNR building (St. Paul). DNR will send out a draft report in advance so that members will have a two-week review period. Discussion at our next meeting will focus on the issues, solutions, and recommendations portion of the report.

METRO TOUR

The metro area tour was very informative and well attended. All agreed that the rain that followed us throughout the day was an unexpected but welcome visitor. The Task Force wishes to acknowledge the people who contributed their time and resources. These include: Harlan Van Wyhe, City of Maple Grove; Gary Sauer, Barton Sand & Gravel; Sue Turner, Barton Sand & Gravel; Linda Schutz, J. L. Shiely Company; Anne Hurlburt, City of Cottage Grove; Bob Lockyear, Washington County; Al Sandkamp, J. L. Shiely's Nelson Plant; and Larry Oshter, J. L. Shiely's Larson Plant.

1:40 PM ADJOURN

NEXT MEETING TIME AND PLACE

Wednesday, September 21, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, September 21, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul

PRESENT:

Orlyn Olson	IRRRB
Frank Ongaro	Dept. Trade & Econ. Development
Senator Bob Schmitz	MN Senate
Bob Bogard	Granite City Ready Mix
Gary Botzek	Aggregate Ready Mix Association
Emmett Duffy	MN/DOT
Paul Pojar	DNR-Minerals Division
Dick Smith	Oscar Roberts Company
Julian Empson	MN House of Representatives
Sue Turner	Barton Sand & Gravel
Linda Schutz	J. L. Shiely Company
Cindy Buttleman	DNR-Minerals Division
Dick Rossman	DNR-Forestry Division
Joe Varda	St. Louis Co. Highway Dept.
Dave Heyer	Becker Co. Highway Engineer
Jeff Knapp	Wright Co. Planning & Zoning
George Durfee	State Planning Agency
David Fricke	MN Assn of Townships
John Stommes	Stommes Construction Company

9:05 AM - CALL TO ORDER

REVIEW OF MEETING MINUTES AND PROGRESS REPORT

No comments or corrections noted.

DISCUSSION OF DRAFT REPORT

Several Task Force members and interested parties were not able to attend the meeting but provided verbal comments on the draft report. These people were: Terry Bovee (LeSueur Co. Planning & Zoning); Warren Pladsen (MN/DOT); Carl Schenk (Metropolitan Council).

The Task Force reviewed the first draft of the report on a page by page basis. Comments and suggestions were noted and will be incorporated into a second draft to be prepared by DNR staff. Recommendations were also discussed and will be included in the second draft.

The Task Force concluded that a meeting in October is necessary to review the second draft of the report (specifically the recommendations section) and to continue discussion on the recommendations. The second draft of the report will be distributed one week before the next meeting.

NEXT MEETING TIME AND PLACE

Wednesday, October 19, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul (room to be announced)

ADJOURN - 12:30 PM

MINUTES
Sand and Gravel Task Force Meeting
Wednesday, October 19, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul

PRESENT:

Orlyn Olson	IRRRB
Frank Ongaro	Dept. Trade & Econ. Development
Senator Bob Schmitz	MN Senate
Gary Botzek	Aggregate Ready Mix Assn
Emmett Duffy	MN/DOT
Paul Pojar	DNR-Minerals Division
Dick Smith	Oscar Roberts Company
Julian Empson	MN House of Representatives
Sue Turner	Barton Sand & Gravel
Linda Schutz	J. L. Shiely Company
Cindy Buttleman	DNR-Minerals Division
Dick Rossman	DNR-Forestry Division
Joe Varda	St. Louis Co. Highway Dept.
Dave Heyer	Becker Co. Highway Engineer
Jeff Knapp	Wright Co. Planning & Zoning
George Durfee	State Planning Agency
Ray Nyberg	DNR-Waters Division
Bob Lockyear	Washington Co. Planning
Ray Lappegaard	J. L. Shiely Company
Mike Convery	PCA-Groundwater/Solid Waste

9:10 AM - CALL TO ORDER

DISCUSSION OF DRAFT REPORT

DNR reported that time did not allow for all the changes suggested at the last meeting to be incorporated into the third draft of the report. Areas of the report that still need revision were identified. The Task Force reviewed the second draft of the report by sections. Comments and suggestions were noted and will be incorporated into a third draft to be prepared by DNR staff.

Recommendations were also discussed. Some members of the task force could not endorse the draft recommendations as written. Alternative recommendations were discussed. Gary Botzek of ARM and Ray Lappegaard of J. L. Shiely offered to independently draft alternative language for consideration by the task force. Their recommendations will be distributed with the next draft of the report.

The Task Force concluded that a meeting in November is necessary to continue discussion on the recommendations and to review changes in the third draft of the report. The report and related materials will be distributed approximately one week before the next meeting.

NEXT MEETING TIME AND PLACE

Monday, November 7, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul (room to be announced)

ADJOURN - 12:15 PM

MINUTES
Sand and Gravel Task Force Meeting
Friday, November 18, 1988
9:00 AM - 12:00 PM
DNR Building, St. Paul

PRESENT:

Orlyn Olson	IRRRB
Gary Botzek	Aggregate Ready Mix Assn
Emmett Duffy	MN/DOT
Paul Pojar	DNR-Minerals Division
Julian Empson	MN House of Representatives
Sue Turner	Barton Sand & Gravel
Linda Schutz	J. L. Shiely Company
Cindy Buttleman	DNR-Minerals Division
Dick Rossman	DNR-Forestry Division
Jeff Knapp	Wright Co. Planning & Zoning
George Durfee	State Planning Agency
Ray Lappegaard	J. L. Shiely Company
Mike Convery	PCA-Groundwater/Solid Waste
Dan Svedarsky	Univeristy of MN - Crookston
Bob Bogard	Granite City Ready Mix
Warren Pladsen	MN/DOT
John Stommes	Stommes Construction Company

9:10 AM - CALL TO ORDER

DEADLINE FOR THE FINAL REPORT

DNR noted that the deadline for the final report is fast approaching. We need to finish the final report in December to allow adequate time for editing, publishing, and the preparation of legislation if necessary.

ALTERNATIVE RECOMMENDATIONS

Four alternative recommendations have been offered for discussion by several task force members. These include: Option 1 - as contained in the draft report dated October 13, 1988; Option 2 - submitted by Gary Botzek of ARM; Option 3 - submitted by Ray Lappegaard of J. L. Shiely; and Option 4 -submitted by Jeff Knapp of Wright County Zoning and Planning.

DNR distributed a handout that summarized the four options. This handout is attached. There was general discussion on the four options. The authors of options 2, 3, and 4 agreed that the summaries as recorded on the handout were accurate.

DNR then distributed a handout that attempted to synthesize the four options into one. This handout formed the basis of the remaining discussion and is also attached. The handout was divided into three sections: Reclamation, Aggregate Material Tax, and Illegal Dumping.

RECLAMATION

Proposal: There is general agreement that industry and local units of government have a need for some basic information on sand and gravel pit reclamation. There is at present no centralized location for such information. To address this need, it was suggested that a library of information be collected by this task force (or by another group).

It was further suggested that the information collected for the library be summarized into some type of product. Possible products identified were a technical manual or best management practices (BMP's) for sand and gravel pit reclamation. BMP's were suggested because the PCA is heading up a project funded by the LCMR that is currently drafting BMP's for sand and gravel mining that address water quality concerns.

Discussion: The majority of participants supported the idea of a library. There was a lengthy discussion on what the nature of the product should be from the library or if a product is even necessary. It appeared as though the majority of participants felt that some sort of product was necessary but there was not agreement as to what. There was widespread discomfort with the term best management practices or BMP's. Several other possible products were suggested including: a series of fact sheets, an information packet, a bibliography, a summary paper, or a technical manual.

There was also some discussion on how this compiled information would be used. Some people felt that it should merely be distributed or made available to industry and local units of government for their voluntary use. Others felt that is should be molded into a Model Ordinance on sand and gravel pit reclamation for voluntary use by local units of government.

Proposed funding: The compilation of information on sand and gravel reclamation and regulation, the development of some sort of summary document, and the distribution of the summary document to industry and local units would be a two-year biennial project. Funding would be sought in the 1989 legislative session.

AGGREGATE MATERIAL TAX

The special reclamation fund established by the Aggregate Material Tax has been identified by the task force as an underused source of funding for reclaiming abandoned sand and gravel pits. The task force recommends that it be broadened to include all counties in the state rather than the 22 that currently collect the tax.

Don Vry of Meridian Aggregate (an interested party) submitted comments on the Aggregate Material Tax for consideration by the task force. He points out that the special reclamation fund established by the Aggregate Material Tax is not only for the reclamation of abandoned sand and gravel pits on state and tax forfeited lands but also for abandoned quarries. The tax is collected from crushed stone producers in addition to sand and gravel operators. He sought clarification from the task force as to whether we were intending to recommend that the special fund apply only to sand and gravel pits. If that were the case, he would be strongly opposed to such a recommendation. (For the record, there has never been discussion on the task force to limit the use of the special reclamation fund to sand and gravel pits only.)

Other potential amendments to the Aggregate Material Tax were discussed as follows but no consensus could be reached:

1. Amend the law so that local units of governments have the ability to make monies from the special reclamation fund available (perhaps on a matching basis) for the reclamation of abandoned pits on private lands in addition to public and tax forfeited lands.

2. Amend the law so that the monies in the special reclamation fund may be used for the acquisition of abandoned sand and gravel pits.

3. Amend the law so that the tax is collected and dispersed by the Minnesota Department of Revenue.

4. Amend the law to increase the portion of the tax allocated to the special reclamation fund.

5. Amend the law to increase the amount of tax.

6. Establish a matching grant program using this tax as the basis for the program.

ILLEGAL DUMPING

The task force has identified illegal dumping as a concern in some sand and gravel pits. The task force agrees on the recommendations as described in the handout.

OTHER BUSINESS

Several minor editorial comments were made on the draft report dated November 10, 1988.

The Task Force ran out of time in the midst of a vigorous discussion on recommendations. It was concluded that another meeting is necessary to conclude discussion on the recommendations.

NEXT MEETING TIME AND PLACE

Tuesday, December 6, 1988
9:00 AM - 12:00 PM
(location to be announced)

ADJOURN - 12:15 PM

SAND AND GRAVEL TASK FORCE RECOMMENDATIONS
"Four Options"

OPTION 1. Draft Reclamation Legislation

Discussed at last task force meeting:

- Current Task Force continues - DNR remains as chair, membership expanded
- Task Force drafts legislation for 1990 session that establishes a uniform reclamation program for active pits
- Program to be implemented by local unit of government
- Legislation will contain minimum reclamation standards
- Source of administrative funding for program identified (permit fees, Aggregate Material Tax)
- Reclamation of pits abandoned before the effective date of the new law will be accomplished on a priority basis by counties using Material Aggregate Tax monies for matching private or other public monies
- Task Force recommends that the Aggregate Material Tax be amended so that it applies to all counties and to private lands
- Illegal dumping: consensus on recommendations as written in draft report

OPTION 2. Reclamation Advisory Committee

Offered by Gary Botzek of ARM:

- New Advisory Committee formed with similar composition as current Task Force but membership expanded - Advisory Committee chaired by a state agency (not necessarily DNR)
- Tasks of the Advisory Committee include:
  - Develop library of ordinances, technical information on reclamation, and other educational information on sand and gravel mining
  - Develop minimum standards for reclamation and integrate into a Model Ordinance
  - Disseminate Model Ordinance and other informational materials to industry and local units of government for their voluntary compliance
  - Develop criteria for evaluating voluntary compliance by local units of government (87 counties, 1,802 townships, 855 cities)
  - Develop future legislation if voluntary compliance is not successful
  - Develop matching grant program for counties to apply for reclamation of abandoned pits (an approach similar to the Star City concept) - sources of funding for the grant program are the general fund, Celebrate 1990, RIM, LCMR, Environmental Trust Fund

OPTION 3. Education/Information Program

Offered by Ray Lappegaard of J. L. Shiely Company:

- The current task force is dissolved
- DNR is designated as lead agency in establishing an Education/Information Program
- DNR tasks include:
  - Distribution of the Task Force report to industry, local units of government, other interested parties
  - Hire a consultant or intern to develop a library and Information/Education program on sand and gravel mining and reclamation to educate local permitting authorities and industry
  - Make an assessment of depleted pits in the state (Task Force report indicates that there are approximately 1,100 abandoned pits in the state) to determine costs of reclamation
  - Develop grant program for the reclamation of abandoned pits for implementation by local units of government
- Aggregate Material Tax should be ammended to apply statewide - monies should be used for administrative reclamation costs, reclamation of abandoned pits, and other general governmental functions

OPTION 4. End Use Approach

Offered by Jeff Knapp of Wright County Zoning:

- The current task force defines potential end uses for sand and gravel pits in our final report
- Potential end uses include Natural, Open Space, Agricultural, Residential, Industrial/Commercial
- In 1989, the task force develops standards for each type of end use
- Standards would be made available to local units for voluntary enforcement

DRAFT RECOMMENDATIONS FOR DISCUSSION

1. Reclamation: an attempt at synthesizing the four options that have been offered

- Current task force (or a new advisory group formed) to write a technical handbook or "Best Management Practices" (BMP) for reclamation of sand and gravel pits. The BMP would provide technical information on establishing wildlife habitat, recommend seed mixes for revegetation, and include other applicable information. The BMP could be potentially broadened to include other types of industrial mineral mining such as crushed stone quarries and kaolin clay mines.
- BMP's are becoming more popular around the country and in our own state. MPCA is engaged in a two year project funded by the LCMR to produce four BMP's that address water quality concerns for urban, timber, agriculture, and mining (primarily sand and gravel mining). Ontario has recently published several technical manuals for reclamation of sand and gravel pits.
- The purpose of the Sand and Gravel Reclamation BMP is to disseminate information to local units of government to be incorporated into their planning process on a voluntary basis. The BMP would also be a source of technical information for the industry.
- The Sand and Gravel Reclamation BMP would be a two year project from July 1, 1989 to July 1, 1991.
- Funding for the project would be sought in the 1989 session through the Minerals Coordinating Committee Budget (Minerals Diversification).
- The project must include a means of evaluating the effectiveness of the BMP. If BMP's are not being utilized by local units and industry, then rules will likely follow.
- The Sand and Gravel Reclamation BMP would be tied to some type of matching grant program to be engineered by the task force.

2. Aggregate Material Tax: apparent consensus on the following recommendations

- Amend to be statewide.
- Amend to allow for the use of reclamation fund monies on private lands.

3. Illegal Dumping: consensus on the following recommendations

- The regulation and reclamation of sand and gravel pits through local zoning ordinances will reduce the attractiveness of these sites for dumping. However, these measures alone will not eliminate illegal dumping.
- According to M. S. Chap. 400, counties have authority for solid waste management within their jurisdictions. More aggressive enforcement of existing laws prohibiting dumping is recommended. However, the counties do not always have adequate staff for an aggressive enforcement campaign.
- Comprehensive recycling legislation and programs such as Clean Sweep and Household Hazardous Waste Collection (organized by the MPCA) should be implemented and continued. These efforts should be coordinated with community clean-up and trash collection days.
- Education and public awareness programs at the local level on the procedures and locations of authorized dumping locations should be implemented.

MINUTES
Sand and Gravel Task Force Meeting
Tuesday, December 6, 1988
9:00 AM - 12:00 PM
Room 15, State Capitol Building

PRESENT:

Gary Botzek	Aggregate Ready Mix Assn
Emmett Duffy	MN/DOT
Paul Pojar	DNR-Minerals Division
Julian Empson	MN House of Representatives
Sue Turner	Barton Sand & Gravel
Linda Schutz	J. L. Shiely Company
Dick Rossman	DNR-Forestry Division
Cindy Buttleman	DNR-Minerals Division
Jeff Knapp	Wright Co. Planning & Zoning
Ray Lappegaard	J. L. Shiely Company
Mike Convery	PCA-Groundwater/Solid Waste
Warren Pladsen	MN/DOT
Dick Smith	Oscar Roberts Company
Dave Heyer	Becker County Hwy Dept.
Terry Bovee	LeSueur County Planning
Joe Varda	St. Louis County Hwy Dept.
Senator Schmitz	State Senator
Frank Ongaro	Dept. Trade & Econ. Dev.
Bob Lockyear	Washington Co. Planning
Ray Nyberg	DNR-Waters Division
Dave Weirens	Assn of Minnesota Counties

9:05 AM - CALL TO ORDER

DEADLINE FOR THE FINAL REPORT

DNR emphasized that the deadline for the final report is January 1989. To allow adequate time for editing, publishing, and the preparation of legislation if necessary, the Task Force must conclude discussion on recommendations at today's meeting.

RECOMMENDATIONS

DNR distributed a handout that summarized the discussion from the meeting on November 18, 1988. This handout, entitled "Summary of Comments from a Meeting on November 18, 1988", is attached. DNR suggested that the handout be used as the basis for discussion at the meeting. The handout was structured according to seven points which were discussed in chronological order.

POINT 1.

"Regulation of sand and gravel pits is currently conducted by local units of government. There is variability among local units in terms of the regulation of sand and gravel pit reclamation. In most cases, regulation of active mining issues such as noise, hours of operation, and compatibility with local land use demands appears to be effectively conducted by the local unit. The Task Force believes that it is unnecessary to re-

quire a state regulatory program for reclamation at this time but that local units of government should be encouraged to make reclamation a higher priority through their current regulatory system."

Discussion: The Task Force endorsed point 1 as written.

POINT 2.

"There is a need on the part of industry and on local units of government for basic information on sand and gravel pit reclamation and regulation. Currently, there is no centralized location for such information. The Task Force recommends that a library of information on sand and gravel pit reclamation and regulation be developed by a new advisory committee composed of representatives from industry, local units of government, and state agencies."

Discussion: DNR described their view of the library as a shelf in the existing DNR library that will house references on sand and gravel pit reclamation. DNR does not envision hiring permanent staff to update the references or serve as a resource contact.

There was discussion on the need for a new advisory committee. It was suggested that a subcommittee of the existing Industrial Minerals Advisory Committee be appointed to serve in an advisory capacity. This idea was discussed further under point 5.

It was pointed out that public agencies that operate sand and gravel pits (Mn/DOT and DNR among others) are also in need of information on reclamation. It was agreed that public agencies that operate sand and gravel pits should be included with industry and local units as potential users of the information.

Noting the discussion, the Task Force endorsed point 2.

POINT 3.

"The Task Force further recommends that the information collected on sand and gravel reclamation and regulation for the library be summarized in one or more of the following forms: technical manual, best management practices, information packet, summary paper, or bibliography."

Discussion: There was general agreement that the technical information collected for the library should be summarized in a format that can be easily distributed to and used by industry, local units, and public agencies that operate sand and gravel pits. The Task Force agreed that a technical manual on sand and gravel pit reclamation would be appropriate.

It was noted that some other products mentioned would be developed during the preparation of the technical manual. For example, compiling references for the library would eventually result in a bibliography. It was further noted that the library and the technical manual would need updating on a periodic basis.

Noting the changes, point 3 as endorsed.

POINT 4.

"The Task Force further recommends that the advisory committee evaluate and recommend the means by which the sand and gravel pit reclamation information collected above, is to be implemented by local units of government. Possible means of implementation identified by the Task Force include but are not limited to:

a) Distributing technical information to the local units of government and industry for voluntary implementation;

b) Developing a model ordinance on reclamation for voluntary enforcement by local units of government; and

c) Drafting a state law containing minimum reclamation standards which would be administered by counties."

Discussion: The Task Force concurred that item c (drafting a state law containing minimum standards) somewhat contradicted the content of point 1. There was a consensus that it should be dropped.

There was some discussion of the fact that state agencies that operate sand and gravel pits do not necessarily have to conform to local regulations. For this reason, it was concluded that public agencies that operate sand and gravel pits should be included in the same context as local units of government.

With the recommended changes, point 4 was endorsed.

POINT 5. PROJECT PROPOSAL.

Discussion: To accomplish the recommendations outlined above, the Task Force ultimately agreed on the following:

The Task Force recommends that funding be sought in the 1989 legislative session through the Minerals Coordinating Committee Budget for a two-year biennial project. The project would include the development of the library, preparation of a technical manual on sand and gravel pit reclamation, and the distribution of the technical information to industry, local units of government, and public agencies that operate sand and gravel pits. Other responsibilities of the project would be to: 1) evaluate and recommend a means by which technical information on reclamation is to be implemented by local units of government and public agencies that operate sand and gravel pits; and 2) devise a matching grant program for the funding of reclamation projects in abandoned sand and gravel pits.

The DNR would be designated as the lead agency in the project. Funding for a DNR position would be part of the appropriation request. The Task Force recommends that a subcommittee of the existing Industrial Minerals Advisory Committee be appointed to serve in an advisory capacity to the DNR in this project. Membership of the Industrial Minerals Advisory Subcommittee should include representatives from the Association of Minnesota Counties, Association of Minnesota Townships, League of Minnesota Cities, industry (large, small, metro, and outstate operators), and applicable state agencies.

POINT 6. AGGREGATE MATERIAL TAX.

Discussion: The special reclamation fund established by the Aggregate Material Tax has been identified by the Task Force as a potential source of funding for reclaiming abandoned sand and gravel pits. Although there had been an apparent consensus at previous meetings on a recommendation to amend the Aggregate Material Tax so that all counties in the state collect the tax rather than the 22 that currently collect the tax, this consensus was overturned during the current discussion.

Further discussion on other potential amendments to the Aggregate Material Tax continued but no consensus could be reached. It was therefore agreed that the Task force should make no recommendations regarding the Aggregate Material Tax but rather identify the special reclamation fund as a source of potential funding for reclamation of sand and gravel pits and report on the amounts and expenditures to date in the reclamation fund.

Discussion then focused on the difficulities of reclaiming abandoned pits. Data collected from the statewide county survey conducted by the Task Force identified approximately 1,060 abandoned pits across the state (the total number of active, intermittently active, and abandoned pits identified in the survey is 3,213). In the survey, the counties further indicated that abandoned pits pose the most concern from a reclamation standpoint. Abandoned pits are difficult to reclaim because mining was often conducted before regulations were enacted and the landowner/operator is frequently no longer in the area.

To address the reclamation of abandoned sand and gravel pits across the state, the Task Force recommends the establishment of a matching grant program that would be used for the reclamation of abandoned pits by local units of government. The Industrial Minerals Advisory Committee Subcommittee will review and make recommendations for the matching grant program including the identification of funding sources and the development of qualifying criteria.

Funding sources for the matching grant program may include but are not limited to the: Environmental Trust Fund, General Fund, funds in the special reclamation fund collected through the Aggregate Material Tax, and potentially new sources of funding centering around groundwater protection legislation. The matching grant program could be maximized by working in cooperation with existing programs such as the Clean Water Partnership, Celebrate 1990, Star City Program, Minnesota Beautiful, and RIM.

POINT 7. ILLEGAL DUMPING.

Discussion: The Task Force agreed on the recommendation as written.

OTHER BUSINESS

The Task Force concluded discussion on recommendations. DNR will prepare a final draft of the report including the consensus recommendations and distribute in approximately 2 to 3 weeks. Task Force members agreed that a week was sufficient time to review the report and submit final comments including requests for another meeting if necessary.

NEXT MEETING TIME AND PLACE

Pending - No meeting will be scheduled unless there are requests by Task Force members upon review of the final report.

ADJOURN - 11:59 PM

SUMMARY OF COMMENTS FROM A MEETING ON NOVEMBER 18, 1988

1. Regulation of sand and gravel pits is currently conducted by local units of government. There is variability among local units in terms of the regulation of sand and gravel pit reclamation. In most cases, regulation of the active mining issues such as noise, hours of operation, and compatibility with local land use demands appear to be effectively conducted by the local unit. The Task Force believes that it is unnecessary to require a state regulatory program at this time but that local units of government should be encouraged to make reclamation a higher priority through their current regulatory system.

2. There is a need on the part of industry and on local units of government for basic information on sand and gravel pit reclamation and regulation. Currently, there is no centralized location for such information. The Task Force recommends that a library of information on sand and gravel pit reclamation and regulation be developed by a new advisory committee composed of representatives from industry, local units of government, and state agencies.

3. The Task Force further recommends that the information collected on sand and gravel reclamation and regulation for the library be summarized in one or more of the following forms:

- Technical manual on sand and gravel pit reclamation.
- Development of Best Management Practices for sand and gravel pit reclamation.
- Information packet or a series of fact sheets on sand and gravel pit reclamation.
- Summary paper on sand and gravel pit reclamation from literature review.
- Bibliography on sand and gravel pit reclamation.

4. The Task Force further recommends that the advisory committee evaluate and recommend the means by which the sand and gravel pit reclamation information collected above, is to be implemented by local units of government. Possible means of implementation identified by the Task force include but are not limited to:

- Distributing technical information to the local units of government and industry for voluntary implementation.
- Developing a model ordinance on reclamation for voluntary enforcement by local units of government.
- Drafting a state law containing minimum reclamation standards which would be administered by counties.

5. The development of the library and the preparation and distribution of information on reclamation to local units of government and industry would be a two year project from July 1, 1989 to July 1, 1991. Funding for the project would be sought in the 1989 legislative session through the Minerals Coordinating Committee Budget (Minerals Diversification).

6. Funding for the reclamation of abandoned pits and quarries on public and tax forfeited lands is currently available from a special fund established by the Aggregate Material Tax (Minn. Stat. 298.75). The funds collected from the tax are allocated as follows: 60% to the County Road and Bridge Fund; 30% to

the Town & City Road and Bridge Fund; and 10% to a special fund for the reclamation of abandoned pits, quarries, and deposits on public and tax-forfeited lands within a county. However, the tax is collected in only 22 counties. To date, these counties have collected a total of $485,459 in the special reclamation fund of which $42,673 has been expended for three reclamation projects in two counties. Several counties, in accordance with the law, have reallocated the monies in the special reclamation fund because they have no abandoned pits or quarries on public and tax forfeited lands. The Task Force recommends that the law be amended to include all counties.

Several other potential amendments to the Aggregate Material Tax were discussed as follows but no consensus could be reached:

- Amend the law to allow local units of government the ability to make monies from the special reclamation fund available (perhaps on a matching basis) for the reclamation of abandoned pits on private lands in addition to public and tax forfeited lands.
- Amend the law so that the monies in the special reclamation fund may be used for acquisition of abandoned sand and gravel pits.
- Amend the law so that the tax is collected and dispersed by the Minnesota Departement of Revenue.
- Amend the law to increase the portion of the tax allocated to the special reclamation fund.
- Amend the law to increase the amount of tax.
- Establish a matching grant program using this tax as the basis for the program.

7. The Task Force identified illegal dumping as a concern in sand and gravel pits. The regulation and reclamation of sand and gravel pits through local zoning ordinances reduces the attractiveness of these sites for dumping. However, these measures alone will not eliminate illegal dumping. The Task Force endorses the following programs:

- According to M. S. Chap. 400, counties have authority for solid waste management within their jurisdictions. More aggressive enforcement of existing laws prohibiting dumping is recommended. However, the counties do not always have adequate staff for an aggressive enforcement campaign.
- Comprehensive solid waste and recycling legislation and programs such as Clean Sweep and Household Hazardous Waste Collection should be implemented and continued. These efforts should be coordinated with community clean-up and trash collection days.
- Education and public awareness programs at the local level on the procedures and locations of authorized waste disposal locations should be implemented.

APPENDIX B: TASK FORCE ACTIVITIES

Meetings. The first meeting of the task force was convened on January 20, 1988. This was an organizational meeting where task force membership and objectives were discussed. The task force met a second time on February 17 and again on April 21 to discuss the issues associated with sand and gravel pit restoration. Subsequent meetings on June 23 and July 20 focused on sand and gravel pit regulations in the metro and outstate areas. A general outline for the final report was also developed. Meetings on September 21, October 19, and November 18 addressed the report, specifically recommendations. The last meeting of the task force was held on December 6. The final report to the Governor was submitted in January 1989. Minutes for all task force meetings are found in Appendix A.

Speakers. Two task force meetings featured speakers. Dr. Dan Svedarsky of the University of Minnesota-Crookston presented a slide show and discussion on the restoration of sand & gravel pits for wildlife purposes at the meeting on April 21. His presentation highlighted restoration of pits that are below the water table.

Les Peterson, an archaeologist from the Minnesota Historical Society, discussed cultural resource laws that apply to sand and gravel operators on June 23. State and federal law requires the Department of Transportation to conduct a cultural resource survey of proposed highway projects. The survey applies to not only the proposed right-of-way but also to any borrow pits or sand and gravel pits developed for the project.

In addition to the formal presentations, informal presentations were made by task force members on their respective areas of expertise.

Field Trips. The task force participated in two field trips. The outstate field trip was conducted on June 22-23, 1988 and covered stops in Sherburne, Stearns, and Benton counties. The task force observed a range of restoration examples and met with regulatory officials from the counties to discuss permitting programs. The task force also toured a granite quarry operation that produces crushed stone used primarily as railroad ballast. Also observed was a small mobile crushing operation. The task force met with the operator to discuss regulations. The trip concluded with a tour of a ready mix plant including the pits that provide aggregate for the operation.

The metro tour was conducted on July 20, 1988. The task force toured several large sand and gravel operations in Maple Grove and Cottage Grove. The task force also met with regulatory officials in both municipalities to discuss permitting procedures. The field trip included a tour of a limestone quarry that produces crushed stone.

Surveys. The task force distributed a survey to all counties in the state soliciting information on their permitting programs and requesting an estimate on the number of pits in their county. Another survey was distributed to 47 states requesting information on permitting programs at the state level.

The DNR also interviewed eight counties from the geographic regions of the state (St. Louis, Pennington, Stearns, Benton, Sherburne, Polk, Hennepin, and Washington) on their regulatory programs. These meetings included discussions on the specific issues that each county faces with respect to sand and gravel.

APPENDIX C. RELATED STATUTES

AGGREGATE MATERIAL TAX

298.75 AGGREGATE MATERIAL REMOVAL; PRODUCTION TAX.

Subdivision 1. **Definitions.** Except as may otherwise be provided, the following words, when used in this section, shall have the meanings herein ascribed to them.

(1) "Aggregate material" shall mean nonmetallic natural mineral aggregate including, but not limited to sand, silica sand, gravel, building stone, crushed rock, limestone, and granite. Aggregate material shall not include dimension stone and dimension granite.

(2) "Person" shall mean any individual, firm, partnership, corporation, organization, trustee, association, or other entity.

(3) "Operator" shall mean any person engaged in the business of removing aggregate material from the surface or subsurface of the soil, for the purpose of sale, either directly or indirectly, through the use of the aggregate material in a marketable product or service.

(4) "Extraction site" shall mean a pit, quarry, or deposit containing aggregate material and any contiguous property to the pit, quarry, or deposit which is used by the operator for stockpiling the aggregate material.

(5) "Importer" shall mean any person who buys aggregate material produced from a county not listed in paragraph (6) or another state and causes the aggregate material to be imported into a county in this state which imposes a tax on aggregate material.

(6) "County" shall mean the counties of Stearns, Benton, Sherburne, Carver, Scott, Dakota, LeSeuer, Kittson, Marshall, Pennington, Red Lake, Polk, Norman, Mahnomen, Clay, Becker, Wilkin, Big Stone, Sibley, Hennepin, Washington, and Ramsey.

Subd. 2. A county shall impose upon every importer and operator a production tax equal to ten cents per cubic yard or seven cents per ton of aggregate material removed except that the county board may decide not to impose this tax if it determines that in the previous year operators removed less than 20,000 tons or 14,000 cubic yards of aggregate material from that county. The tax shall be imposed on aggregate material produced in the county when the aggregate material is transported from the extraction site or sold, when in the case of storage the stockpile is within the state of Minnesota and the highways are not used for transporting the aggregate material. The tax shall be imposed on an importer when the aggregate material is imported into the county that imposes the tax.

If the aggregate material is transported directly from the extraction site to a waterway, railway, or another mode of transportation other than a highway, road or street, the tax imposed by this section shall be apportioned equally between the county where the aggregate material is extracted and the county to which the aggregate material is originally transported. If that destination is not located in Minnesota, then the county where the aggregate material was extracted shall receive all of the proceeds of the tax.

Subd. 3. By the 14th day following the last day of each calendar quarter, every operator or importer shall make and file with the county auditor of the county in which the aggregate material is removed or imported, a correct report under oath, in such form and containing such information as the auditor shall require relative to the quantity of aggregate material removed or imported during the preceding calendar quarter. The report shall be accompanied by a remittance of the amount of tax due.

If any of the proceeds of the tax is to be apportioned as provided in subdivision 2, the operator or importer shall also include on the report any relevant information concerning the amount of aggregate material transported, the tax and the county of destination. The county auditor shall notify the county treasurer of the amount of such tax and the county to which it is due. The county treasurer shall remit the tax to the appropriate county within 30 days.

Subd. 4. If any operator or importer fails to make the report required by subdivision 3 or files an erroneous report, the county auditor shall determine the amount of tax due and notify the operator or importer by registered mail of the amount of tax so determined. An operator or importer may, within 30 days from the date of mailing the notice, file in the office of the county auditor a written statement of ob-

jections to the amount of taxes determined to be due. The statement of objections shall be deemed to be a petition within the meaning of chapter 278, and shall be governed by sections 278.02 to 278.13.

Subd. 5. Failure to file the report shall result in a penalty of $5 for each of the first 30 days, beginning on the 14th day after the date when the county auditor has sent notice to the operator or importer as provided in subdivision 4, during which the report is overdue and no statement of objection has been filed. For each subsequent day during which the report is overdue and no statement of objection has been filed, a penalty of $10 shall be assessed against the operator or importer who is required to file the report. The penalties imposed by this subdivision shall be collected as part of the tax. If neither the report nor a statement of objection has been filed after more than 60 days have elapsed from the date when the notice was sent, the operator or importer who is required to file report is guilty of a misdemeanor.

Subd. 6 It is a misdemeanor for any operator or importer to remove aggregate material from a pit, quarry, or deposit or for any importer to import aggregate material unless all taxes due under this section for the previous reporting period have been paid or objections thereto have been filed pursuant to subdivision 4.

It is a misdemeanor for the operator or importer who is required to file a report to file a false report with intent to evade the tax.

Subd. 7. All money collected as taxes under this section shall be deposited in the county treasury and credited as follows, for expenditure by the county board:

(a) Sixty percent to the county road and bridge fund for expenditure for the maintenance, construction and reconstruction of roads, highways and bridges;

(b) Thirty percent to the road and bridge fund of those towns as determined by the county board and to the general fund or other designated fund of those cities as determined by the county board, to be expended for maintenance, construction and reconstruction of roads, highways and bridges; and

(c) Ten percent to a special reserve fund which is hereby established, for expenditure for the restoration of abandoned pits, quarries, or deposits located upon public and tax forfeited lands within the county.

If there are no abandoned pits, quarries or deposits located upon public or tax forfeited lands within the county, this portion of the tax shall be deposited in the county road and bridge fund for expenditure for the maintenace, construction and reconstruction of roads, highways and bridges.

History: *1980 c 607 art 19 s 5; 1Spl1981 c 1 art 10 s 17-19; 1982 c 523 art 13 s 1, 1983 c 342 art 14 s 1; 1984 c 652 s 1; 1986 c 403 s 1,2*

AGGREGATE PLANNING AND PROTECTION

84.94 AGGREGATE PLANNING AND PROTECTION

Subdivision 1. **Purpose.** It is the purpose of this act to protect aggregate resources; to promote orderly and environmentally sound development; to spread the burden of development; and to introduce aggregate resource protection into local comprehensive planning and land use controls.

Subd. 2. **Definition.** For the purpose of this act, "municipality" means a home rule charter or statutory city or a town.

Subd. 3. **Identification and classification.** The departmenrt of natural resources with the cooperation of the state geological survey, department of transportation, and energy, planning and development, outside of the metropolitan area as defined in section 473. 121, shall conduct a program of identification and classification of potentially valuable publicly or privately owned aggregate land located outside of urban or developed areas where aggregate mining is restricted, without consideration of their present land use. The program shall give priority to identification and classification in areas of the state where urbanization or other factors are or may be resulting in a loss of aggregate resource to development. Land shall be classified as:

(1) identified resources, being those containing significant aggregate deposits;

(2) potential resource, being those containing potentially significant deposits and meriting further evaluation; or

(3) subeconomic resource, being those containing no significant deposits.

As lands are classified, the information on the classification shall be transmitted to each of the department and agencies named in this subdivision, to the planning authority of the appropriate county and municipality, and to the appropriate county engineer. The county planning authority shall notify owners of land classified under this subdivision by publication in a newspaper of general circulation in the county or by mail.

Subd. 4. **Local action.** Each planning authority of a county or municipality receiving information pursuant to subdivision 3 shall consider the protection of identified and important aggregate resources in their land use decisions.

History: *1984 c 605 s 1*

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A Review of regulations
regarding the reclamation