

DK 69-19 - #204 Review of application
for Federal Funds toward construction
of a lime recalcining plant.

ACTION

DATE

COMMITTEE _____

M.A.P.C. *Approved by M.A.P.C. 1-15-70*

B.C.C./B. CO. C. _____

8-28-69

*File closed as
instructed by Sakin
Not considered
By Mape*

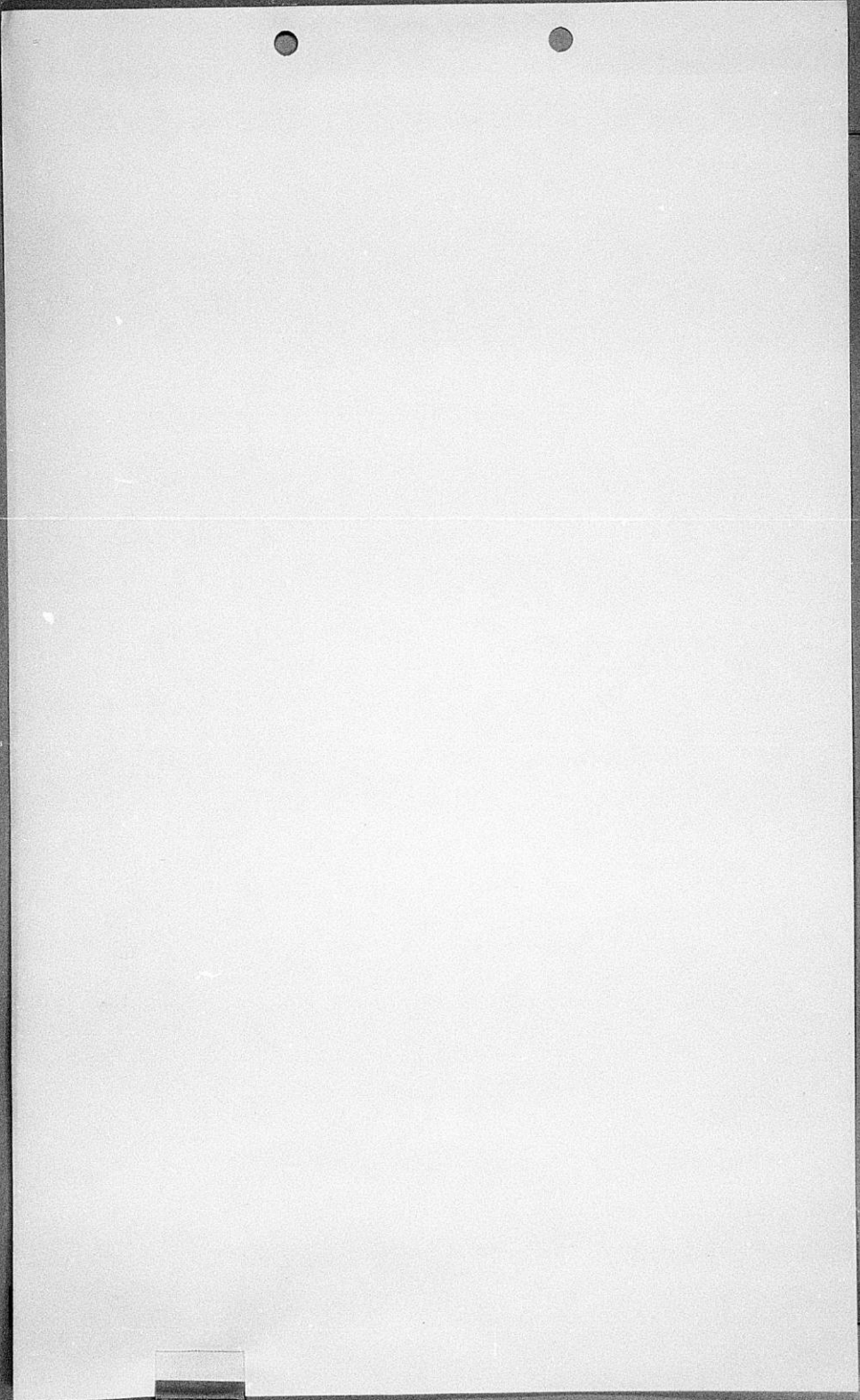
*1-15-70 - Case Re opened & presented to M.A.P.C.
M.A.P.C. - Conditional Approval Re: M.A.P.C. 1-15-70*

TABLE OF CONTENTS

- I. Standard Form 101, Application for Federal Assistance, Water Treatment Plant Waste Disposal System.
 - 1. Attachment Item 3B - Statement of Public Interest and Necessity

- II. Planning Agency Comments and Recommendations





APPLICATION
FEDERAL ASSISTANCE FOR
PUBLIC WORKS AND FACILITY
TYPE PROJECTS

(Please read the Instructions before completing this application. Submit application in original and one copy. Attach additional sheets if necessary.)

DO NOT WRITE IN THIS AREA - FOR GOVERNMENT USE ONLY			
IA NO.		REFERRAL	
AGENCY	DATE RECEIVED	DATE REFERRED	TO
AGENCIES ASSUMING JURISDICTION			
AGENCY	DATE	PROJECT COMPONENT	PROJECT NO.

APPLICANT (Exact legal name or proposed name if not incorporated)

1A. **City of Wichita** (County) **Sedgwick** (State) **Kansas** (Zip code) **67202**

CITY OR TOWN

1B. TYPE OF ORGANIZATION (Check appropriate box)

STATE GOV. AGENCY LOCAL GOV. UNIT NON-PROFIT ORGANIZATION OTHER (Specify)

2. LOCALITIES TO BE SERVED

CITIES, TOWNS, OR AREAS (List separately)	COUNTY	POPULATION		
		1960	CURRENT (Est.)	TO BE SERVED BY PROJECT
Wichita, Kansas	Sedgwick	254,698	282,525	*360,000
Metropolitan Area (SMSA)	Sedgwick-Butler	343,231	396,007	*378,700
*1980 Population Projections				

3. DESCRIPTION AND PURPOSE OF PROPOSED PROJECT

A. DESCRIPTION
 Construction of a lime recalcining plant, washwater sludge recovery facilities and electrical substation. Land acquisition and development for sludge disposal during recalcination plant maintenance or when excess sludge is generated. The proposed project will comply with State water quality standards, requiring the elimination of the present method of discharging softening sludge into the Arkansas River.

B. PUBLIC INTEREST AND NECESSITY

Detail Attached - Item 3B

C. PLANNING AGENCY (County, Multi-county, Regional, etc.) **Wichita-Sedgwick County Metropolitan Area Planning Commission**

REVIEWED BY PLANNING AGENCY (Attach comments) NOT REVIEWED BY PLANNING AGENCY (If not, explain)

4. METHOD OF FINANCING (In thousands of dollars)

SOURCE OF FUNDS	C O M P O N E N T S				TOTAL (5)
	W A S T E		WATER (3)	OTHER (Describe in G. below) (4)	
	TREATMENT (1)	COLLECTION (2)			
A. FEDERAL GRANT REQUESTED	\$	\$	\$ 1,500,000	\$	\$ 1,500,000
B. FEDERAL LOAN REQUESTED					
C. OTHER FEDERAL CONTRIBUTION					
D. STATE CONTRIBUTION					
E. APPLICANT CONTRIBUTION			1,620,000		1,620,000
F. ESTIMATED TOTAL PROJECT COST	\$	\$	\$ 3,120,000	\$	\$ 3,120,000

G.

5. OTHER FEDERAL ASSISTANCE - PREVIOUS OR PENDING

NAME OF AGENCY	TYPE OF ASSISTANCE	INDEBTEDNESS OUTSTANDING, IF ANY	AMOUNT REQUESTED

The applicant represents that the data in this application are true and correct to the best of his knowledge and belief and that the filing of this application has been duly authorized by the governing body of the applicant.

EXACT LEGAL (Corporate) NAME OF APPLICANT (If unincorporated, enter proposed name)

City of Wichita
Wichita, Kansas

ATTEST (Signature of attesting officer)	BY (Signature of authorized officer)
TITLE <i>Ralph C. Eberly</i> Ralph C. Eberly, City Clerk	TITLE <i>Donald K. Enoch</i> Donald K. Enoch, Mayor

NOTE: Additional Information May Be Requested To Support This Application.
(DO NOT WRITE IN THIS SPACE - FOR GOVERNMENT USE ONLY)

PUBLIC INTEREST AND NECESSITY

The City of Wichita Water Treatment Plant was constructed in 1940 and has subsequently been expanded to meet the increased water needs of a growing city.

Coincident to this growth, there has been a corresponding increase in the generation of lime softening sludge, a waste product of the water treatment process. This waste product, presently being discharged into the Arkansas River, both discolors the river water and forms unsightly sludge banks in the stream bed. The sludge banks remain until they are subsequently swept downstream during periods of high water. This simple but unattractive method of disposal has long been criticized by concerned citizens as well as water and pollution abatement authorities.

The Kansas State Department of Health has notified the City of Wichita that the present method of disposing of lime sludge is in violation of the State water quality standards. The standards have been legislated to eliminate the discharge of any waste material into the rivers and streams of Kansas that might have a detrimental effect on the ecology of the stream beds.

The City of Wichita is undertaking a program of river beautification to develop a river corridor concept based on physical features, natural resources, land use, park and recreational areas, and incorporating a system of hiking trails, bikeways, bridle trails, and water oriented recreational areas.

One low water dam is now under construction at Lincoln Street and four more are planned to compliment the Arkansas River Beautification Program. Reservoirs created by these dams will extend from Broadway Street northward through the City approximately eight miles to a point above 21st Street. The lime sludge discharge to the river will accumulate behind the dams, thereby destroying the beauty of the impounded

waters as well as accelerating an ecological change in the stream bed.

As a result of increased awareness and concern of the pollution problem, and with the immediate necessity of taking action in conformance with the Arkansas River Beautification Program, the City of Wichita contracted with Black & Veatch Consulting Engineers on December 17, 1968 for a complete study and in-depth report of methods of eliminating lime sludge discharge to the Arkansas River. On July 29, 1969 the "Report On Water Treatment Plant Waste Disposal" was received and filed by the City Commission.

Findings and recommendations of that report are as follows:

The 1968 average annual water production rate was 35.2 million gallons per day with a maximum daily rate of 62.6 mgd and a minimum daily rate of 23.5 mgd. The maximum capacity of the existing water treatment plant is 112 mgd. This maximum plant capacity is projected to be reached by 1986 when the average annual production reaches 59.0 mgd.

The lime feed rate is approximately 890 pounds per million gallons of water for a composite raw water consisting of three parts equus bed water to one part Cheney Reservoir water. The resulting sludge is produced at a rate of approximately 2,400 pounds per million gallons of water processed. The resultant ratio of sludge produced to lime feed is 2.7 to 1.0.

At the present average annual water use rate of 35.2 mgd, 42.5 tons of sludge will be produced daily. At the maximum plant capacity of 112 mgd, the sludge production rate will be 135 tons per day.

There are two practicable means of sludge disposal available to the City of Wichita. (1) by lagooning and (2) by recalcining the sludge and reusing the product in the water treatment plant. The latter method has been found to be the more economical of the methods studied.

It is recommended that the City construct a lime recalcining plant adjacent to the chemical building at the existing

water treatment plant. The proposed plant will have an initial capacity of 70 tons per day input and will be expandible to a maximum capacity of 135 tons per day.

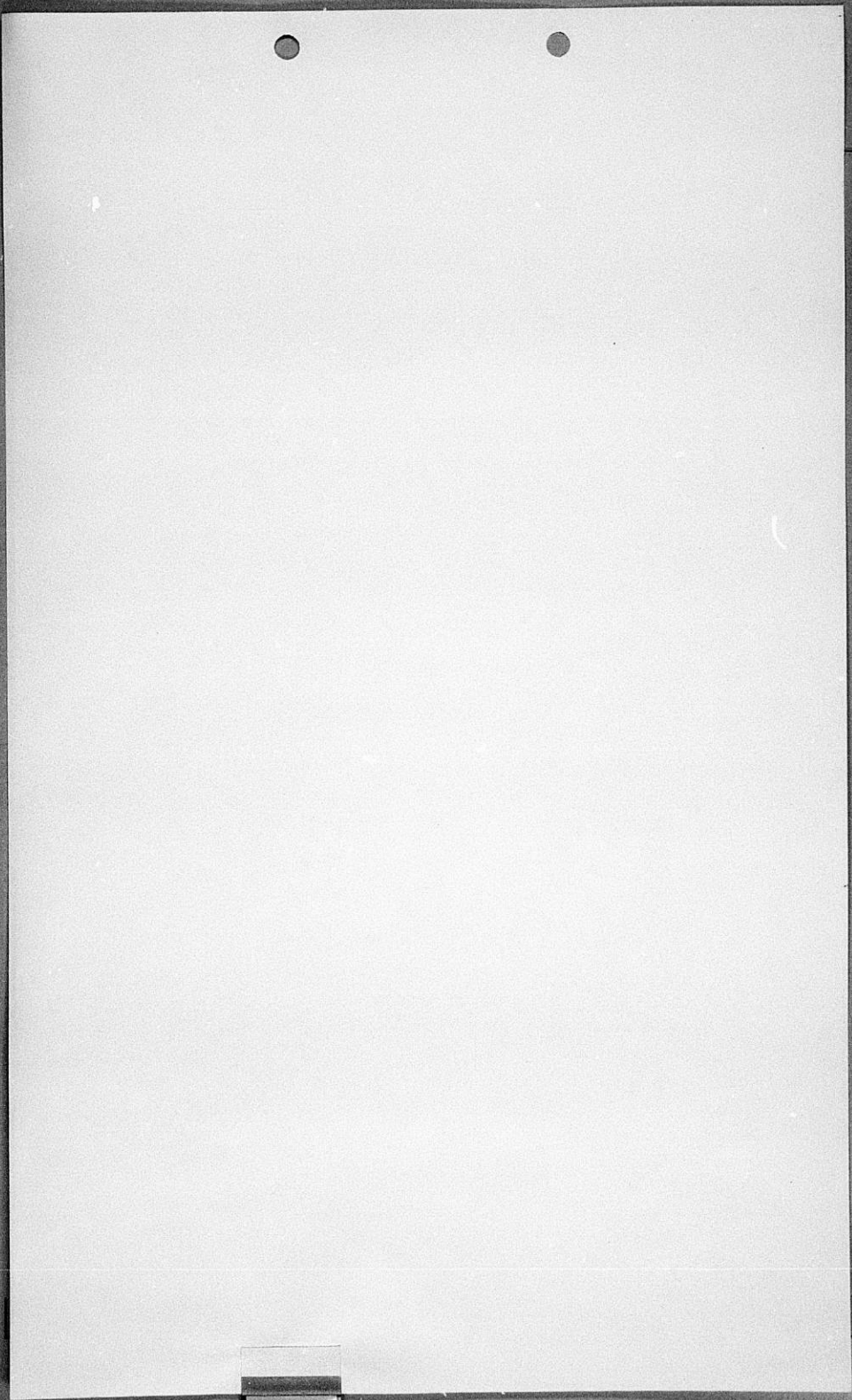
Pending the construction of the lime recalcining plant, facilities will be necessary to protect the low water dam now under construction at Lincoln Street. These facilities include a sludge holding tank, pumps, piping, force main, and a sludge lagoon. It is recommended that a lagoon site compatible with the comprehensive planned development of the metropolitan area be purchased and developed by the City.

The sludge lagoon will be of low capacity and should be operated without the lime recalcining plant for as short a period as possible. The facilities will be incorporated in permanent disposal facilities to be used during periods of plant shutdown for maintenance, when excess sludge is generated, or when the centrate from dewatering equipment cannot be recycled into the water treatment plant.

The filter backwash contains a significant amount of sludge solids which would be detrimental to the reservoirs created by the low water dams on the river. Therefore, it is recommended that sludge recovery facilities for the filter backwash water be constructed. These facilities will provide for the interception, temporary storage, sludge removal, and subsequent return of backwash water to the raw water flume.

Construction costs are as follows:

Lime recalcining plant cost	\$ 2,315,000.00
Lagoon purchase and development, force main and appurtenances complete	350,000.00
Electrical substation for lime recalcining plant	55,000.00
Wash water sludge recovery system	400,000.00
TOTAL	\$ 3,120,000.00



II

WICHITA — SEDGWICK COUNTY



METROPOLITAN AREA PLANNING
COMMISSION

AMHERST 2-0611 — AREA CODE 316
CITY BUILDING ANNEX
104 S. MAIN ST.
WICHITA, KANSAS 67202

January 16, 1970

Ralph Wulz, City Manager
City of Wichita
204 South Main
Wichita, Kansas 67202

Subject: Water Treatment Plant
Waste Disposal
Case DR 69-19

Dear Mr. Wulz:

The Wichita Water Department, acting for the City of Wichita, requested that the Metropolitan Area Planning Commissioner review their preliminary application for Federal funds which would be used toward financing the construction of a Lime Calcination Plant adjacent to the Chemical Building at the Water Treatment Plant. A copy of the Report entitled "Water Treatment Plant Waste Disposal" prepared by Black and Veatch, Consulting Engineers, was also submitted with the request.

On Thursday, January 15, 1970, the Wichita-Sedgwick County Metropolitan Area Planning Commission reviewed the project data and information which was submitted. As a result of this review the Commission concluded that:

1. The discharging of lime sludge wastes into the Big Arkansas River should be discontinued.
2. The construction of a lime calcination plant appeared to be the best solution and method for disposal of lime sludge wastes.
3. An additional facility such as a lagoon is needed where lime sludge can be discharged during the interim period that the recalcining plant is being constructed.

WICHITA—SEDGWICK COUNTY

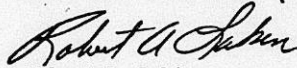
Page 2 - Ralph Wulz - January 16, 1970

4. The construction of a lime recalcination plant adjacent to the Water Treatment Plant does not conflict with any other like facility nor any elements of the Comprehensive Plan which is in the process of development.

On the basis of the above conclusions the Planning Commission unanimously passed the following motion:

1. That this is a pre-application review and that a complete application will be submitted to the Metropolitan Area Planning Commission at a later date which will be reviewed according to the procedures established in Bureau of the Budget Circular A-95 and,
2. The Planning Commission approves the calcination method of lime and sludge disposal as outlined above with the understanding that the complete application will contain a specific location for a lime sludge lagoon and include improvement proposals covering access to the lagoon site, landscaping, fencing and any other improvements that may be contemplated for the disposal area.

Yours very truly,



Robert A. Lakin
Secretary

RAL:JPL:bh

cc: Robert H. Hess, Director of Water and Water Pollution Control
William J. Goebel, Chairman, MAPC

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William J. Goebel, Chairman, MAPC

JIM
THIS IS BEING DISTRIBUTED THROUGH THE SCHOOL SYSTEM. WE DID NOT WRITE IT. I THOUGHT YOU MIGHT APPRECIATE IT THOUGH - GARY

Do You Support

LIME
SLUDGE
?

The City and Sludge

Commissioner Walter M. Keeler, in a Wichita Eagle on Nov. 24, ended a d expenses on the improvement of McAd

"And so it becomes apparent th worth whatever the taxpayers support."

TAXPAYERS WILL BE SUPPORTING IN THE A LIME SLUDGE POND, STRETCHING FROM PLANT TO THE NEW LINCOLN STREET DAM KNOWN AS THE ARKANSAS RIVER), UNLE ACTS NOW.

THE COST TO THE TAXPAYER WILL INCLU

1. the loss of the beauty of th
2. the loss of plant life in th
3. the loss of fish in the rive
4. the loss of birds which feed water insects and fish.
5. the loss of \$100,000 in 1970 budgeted for river beautific dollars which will be spent the banks of a DEAD POOL.

THAT IS ONLY THE BEGINNING, UNLESS ACTS NOW.

TAXPAYERS ARE ALREADY SPENDING \$803 STREET DAM, BRIDGE, AND ROADWAY. T DAM WILL BEGIN TO FILL WITH LIME S 42.5 TONS A DAY STARTING NO LATER T

UNLESS THE CITY COMMISSION ACTS NOW

Prepared by Citizens for a Better Wichita

WHY?

The City and Sludge

Commissioner Walter M. Keeler, in a statement to The Wichita Eagle on Nov. 24, ended a discussion of city expenses on the improvement of McAdams Park with:

"And so it becomes apparent that a park is worth whatever the taxpayers are able to support."

TAXPAYERS WILL BE SUPPORTING IN THE VERY NEAR FUTURE A LIME SLUDGE POND, STRETCHING FROM THE WATER TREATMENT PLANT TO THE NEW LINCOLN STREET DAM (IN WHAT IS NOW KNOWN AS THE ARKANSAS RIVER), UNLESS THE CITY COMMISSION ACTS NOW.

THE COST TO THE TAXPAYER WILL INCLUDE:

1. the loss of the beauty of the river.
2. the loss of plant life in the river.
3. the loss of fish in the river.
4. the loss of birds which feed off of water insects and fish.
5. the loss of \$100,000 in 1970 alone budgeted for river beautification--- dollars which will be spent decorating the banks of a DEAD POOL.

THAT IS ONLY THE BEGINNING, UNLESS THE CITY COMMISSION ACTS NOW.

TAXPAYERS ARE ALREADY SPENDING \$803,000 ON THE LINCOLN STREET DAM, BRIDGE, AND ROADWAY. THE RIVER BEHIND THE DAM WILL BEGIN TO FILL WITH LIME SLUDGE AT THE RATE OF 42.5 TONS A DAY STARTING NO LATER THAN MARCH OF 1970,

UNLESS THE CITY COMMISSION ACTS NOW.

WHY?

City Commissioner John Stevens on Dec. 9 made the public statement that;

"After decades of people dwelling in cities there is bound to be decay, brought on by people, not buildings."

UNFORTUNATELY THE DECAY OF THE RIVER HAS BEEN AIDED FOR YEARS BY A CITY BUILDING---THE WATER TREATMENT PLANT--- WHICH DUMPS AN AVERAGE OF 42.5 TONS OF LIME SLUDGE INTO THE RIVER EVERY DAY (usually at 2 a.m. from a force main that enters the river just north of the sand bar below Sim Park circle drive.)

John Stevens also noted that:
"The worst kind of pollution is that in the mind of man."

CERTAINLY NO ONE COULD DISAGREE WITH THAT STATEMENT--- ESPECIALLY SINCE THE MIND OF THE CITY COMMISSION SEEMS CONTENT TO POLLUTE THE ARKANSAS RIVER---LITERALLY, NOT FIGURATIVELY.

In a letter to Robert H. Hess of the Wichita Water Dept., Melville W. Gray, Acting Chief Engineer and Director of Environmental Health Services for the State Health Dept. comments that:

"We have been more concerned with softening sludge from the Wichita plant with the implementation of the proposal to build a low-head dam across the Arkansas River below the water plant. The softening sludge has the capacity to destroy a healthy environment for aquatic flora and fauna. The sludge can accumulate behind the dam presently being constructed in Wichita and in addition to destroying aquatic life can produce undesirable esthetic factors."

GRAY ADDS:

"Technically, the city of Wichita is in violation of water quality standards in discharging softening sludge to the river."

WHY HAS THE STATE HEALTH DEPT.
WHAT HAS THE CITY

Wichita contracted with Black Engineers, for a study on waste May 9, 1969. The following report:

1. That a recalcining plant adjacent to the chemical water treatment plant dump the sludge into lime in the water treatment plant.
2. That a site be developed which cannot be produced by the plant, and that a tunnel be constructed to protect the Lincoln Street.
3. "That filter backwash be constructed."

ITEM 12 OF THE REPORT'S "FINDINGS"

"Until the lime recalcining temporary facilities are completed the low water dam now under construction on Lincoln Street. These facilities include a sludge holding tank, pumps, and aeration tank. The sludge lagoon will be used as a settling tank should be operated with the plant for as short a period as possible. THE REPORT INCLUDES THREE ALTERNATE METHODS OF THE RESERVIOR CREATED BY THE DAM:
(1) pump the sludge to a lagoon at the proposed Broadway Avenue force main routed along the street to the intersection of 9th and E. The sludge by force main to

NONE OF THESE TEMPORARY PROPOSALS WERE DISCUSSED PUBLICALLY BY THE CITY COMMISSION IN THE REPORT IN MAY. IT MIGHT BE THAT THEY WOULD COME UP DURING THE SIM PARK PROJECT TO MR. KEELER, IT HAS

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WHY HAS THE STATE HEALTH DEPARTMENT NOT DONE SOMETHING?
WHAT HAS THE CITY DONE RIGHT?

Wichita contracted with Black & Veatch, consulting engi-
neers, for a study on waste disposal which is dated
May 9, 1969. The following suggestions are from the
report:

1. That a recalcining plant be constructed "ad-
jacent to the chemical building at the exist-
ing water treatment plant," which would refine
the sludge into lime which could be used then
in the water treatment process.
2. That a site be developed for excess lime waste
which cannot be processed in the recalcining
plant, and that a temporary facility "to pro-
tect the Lincoln Street Dam" be built.
3. "That filter backwash water recovery facilities
be constructed."

ITEM 12 OF THE REPORT'S "FINDINGS" STATES:

"Until the lime recalcining plant is completed,
temporary facilities are necessary to protect
the low water dam now under construction at Lin-
coln Street. These facilities include a sludge
holding tank, pumps, force main and sludge lagoon.
The sludge lagoon will be of low capacity and
should be operated without the lime recalcining
plant for as short a period as possible."

THE REPORT INCLUDES THREE ALTERNATIVES FOR PROTECTION
OF THE RESERVIOR CREATED BY THE LINCOLN STREET DAM.

"(1) pump the sludge to a point of discharge below
the proposed Broadway Avenue dam by means of a new
force main routed along the river front, (2) pump
the sludge to the sewage treatment plant at the in-
tersection of 9th and Edwards Streets, (3) pump the
sludge by force main to a sand pit or lagoon."

NONE OF THESE TEMPORARY PROTECTIVE MEASURES HAVE BEEN
DISCUSSED PUBLICALLY BY THE COMMISSION SINCE THEY GOT
THE REPORT IN MAY. IT MIGHT APPEAR THAT ITEM (3) HAS
COME UP DURING THE SIM PARK PROPOSAL, BUT WITH DUE RE-
SPECT TO MR. KEELER, IT HAS NOT.

The engineers suggested a "low capacity" facility to be operated for "as short a time as possible." The I-235 and Sim Park lagoon sites have been discussed as being designed to last OVER 40 YEARS---if the recalcining plant is built soon.

COMMISSIONER KEELER WOULD LIKE TO USE A SIM PARK LOCATION ADJACENT TO PUBLIC GOLF COURSE GREEN #1.

KEELER SAYS, "Mr. Hess has advised that the total cost of a settling facility along Interstate 235 would cost \$402,000. To perform the same job adjacent to the Water Plant would cost \$194,000. (1)" HE ALSO MAINTAINS THAT THROUGH SALE OF SAND DREDGED FROM THE LATTER LOCATION, THE PUBLIC WOULD SAVE \$400,000.

NO DREDGING COSTS ARE INCLUDED IN THE WATER DEPARTMENT'S REPORT FROM WHICH MR. KEELER GOT HIS \$194,000 FIGURE. AS A MATTER OF FACT, THE REPORT SUGGESTS DIKES NOT DREDGING (but does not include the cost of dikes either). 2

IF KEELER'S SAND PIT SUCCEEDS:

(1. Which roads through Sim Park can stand the heavy truck traffic? (2. Who will BUY the sand? (3. Who will sell the sand? (4. What will the dredging and trucking operation ultimately do to the wildlife refuge and recreational facilities in the park?

KEELER SAYS, "The area in question will not be ruined, neither will the trees and plum thickets on top of the sand ridges be destroyed.(1)"

The Water Department experts say, "The trees that are located within the area of the toe and top of the natural embankment would have to be removed for they would not live with sludge placed around them." 2

1. from Keeler's Nov. 24 statement to The Wichita Eagle.
2. from LIME SOFTENING SLUDGE SUPPLEMENTAL REPORT: Cost Analysis of Sim Park Lagoon Site & I-235 Lagoon Site,

JOHN DEKKER, DIRECTOR OF LAW (in a Wulz dated Nov. 6, 1969) STATES:

"If the desired use is to put softening sludge in Sim Park method of doing so would be the heirs of the original go

THE SIM HEIRS HAVE SAID "NO!"

YET

On Dec. 9 Keeler, HAVING HEARD THE held the use of Sim Park for sludge moved to DELAY ACTION for yet ano

By WHAT MEANS does Keeler intend if "THE ONLY LEGAL METHOD" has be

IF BLACK & VEATCH AND THE STATE A REPORT THAT SOMETHING MUST BE DONE COLN STREET DAM AND ITS RESERVOIR COMMISSION DELAYING A DECISION?

WHY NO DISCUSSION ON A LAGOON SITE TIL THE PERMANENT SITE CAN BE BOU

WHAT CAN THE CITIZEN DO TO PROTECT

ASK QUESTIONS:

Information about lime sludge and goon sites are at the Wichita Water Information about the ecological CACO₃ (95% of dry lime sludge) be gotten from the Health Dept. State Conservation service.

OR CALL ONE OF THE OR BELOW, AND EXPRESS AB

The Audubon Society
Conservation Foundation
Kansas Outdoor Sportsmen's Assoc
4-H

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E SUPPLEMENTAL REPORT: Cost
on Site & I-235 Lagoon Site,

JOHN DEKKER, DIRECTOR OF LAW (in a letter to Ralph
Wulz dated Nov. 6, 1969) STATES:

"If the desired use is to put the lagoon for lime
softening sludge in Sim Park, I feel the only legal
method of doing so would be to obtain waivers from
the heirs of the original grantors in the deed."

THE SIM HEIRS HAVE SAID "NO!"

YET

On Dec. 9 Keeler, HAVING HEARD THEIR ANSWER, still up-
held the use of Sim Park for sludge---and the Commission
moved to DELAY ACTION for yet another month.

By WHAT MEANS does Keeler intend to gain the property,
if "THE ONLY LEGAL METHOD" has been tried and failed.

IF BLACK & VEATCH AND THE STATE AND CITY WATER EXPERTS
REPORT THAT SOMETHING MUST BE DONE TO PROTECT THE LIN-
COLN STREET DAM AND ITS RESERVIOR, WHY IS THE CITY
COMMISSION DELAYING A DECISION?

WHY NO DISCUSSION ON A LAGOON SITE THEY CAN USE UN-
TIL THE PERMANENT SITE CAN BE BOUGHT?

WHAT CAN THE CITIZEN DO TO PROTECT HIS RIVER AND HIS PARK?

ASK QUESTIONS !

Information about lime sludge and cost analyses of la-
goon sites are at the Wichita Water Dept.

Information about the ecological effects of accumulated
CACO₃ (95% of dry lime sludge) and general pollution can
be gotten from the Health Dept. or local offices of the
State Conservation service.

OR CALL ONE OF THE ORGANIZATIONS
BELOW, AND EXPRESS AN INTEREST:

The Audubon Society	Girl Scouts
Conservation Foundation	Boy Scouts
Kansas Outdoor Sportsmen's Assoc.	
4-H	

OR ANY OTHER ORGANIZATION INTERESTED
IN PRESERVING SOME OF KANSAS FOR FUTURE ADULTS.

RE: AGENDA ITEM NO. 5

WICHITA-SEDGWICK COUNTY

DATE
January 9, 1970

METROPOLITAN AREA PLANNING DEPARTMENT



TO Wichita-Sedgwick County Metropolitan Area
Planning Commission
FROM James P. Looney, Community Facilities Planner
Long Range Planning Division
SUBJECT Case DR 69-19 - Water Treatment Plant Waste Disposal

On Tuesday, July 29, the Board of City Commissioners approved a Report on "Water Treatment Plant Waste Disposal - Wichita, Kansas" by Black & Veatch, Consulting Engineers. The purpose of the study was to determine the most practical means for disposal of lime sludge wastes generated in the treatment of raw water at the Water Treatment Plant. Engineering analysis has found that the most practical and permanent arrangement would be the construction of a lime calcination plant.

The Board of City Commissioners directed the City Manager to proceed with steps toward filing an application for a Federal grant to aid in constructing this facility and also to acquire a site that would serve as an interim disposal area until the calcining plant could be constructed. As a result of the above administrative action the Department of Water and Water Pollution Control acting on behalf of the City of Wichita has indicated that a preliminary application will be filed with the Department of Housing and Urban Development (HUD) for Federal funds to be used toward construction of a Lime Calcination Plant at the existing Water Treatment Plant. It is their request that pursuant to Attachment "A";, Part I of Bureau of the Budget Circular A-95, the project be reviewed to determine whether it conforms with elements of the Comprehensive Plan which are in the process of development for the Wichita-Sedgwick County Metropolitan Area.

BACKGROUND

As a result of chemicals being added to the raw water at the water treatment plant, there is a lime sludge residue which is presently discharged into the Big Arkansas River. The quantity of sludge varies with the quantity of water treated. Presently about 43 tons of sludge is produced daily and engineers have estimated that approximately 135 tons per day would be produced in 1986. The discharge of lime sludge into the river causes a discoloration of the water and also forms unsightly sludge banks in the stream bed. These sludge banks remain for long periods of time or until the river flow increases to the point where they are washed down

stream. Recent emphasis on stream pollution abatement as voiced by authorities at various levels of government and the river beautification program which is presently being initiated served to magnify the problem of what to do with lime sludge waste.

FINDINGS

A review of the consultant Engineer's Report indicates that:

- A. There are two practical means of sludge disposal available to the City of Wichita; (1) by lagooning and (2) by recalcining the sludge and reusing the product in the water treatment plant. The latter method has been found to be the most economical of the two methods studied.
- B. The proposed project consists of constructing a lime calcination plant adjacent to the Chemical Building at the existing water treatment plant. The new facility will have an initial capacity of 70 tons per day sludge input and will be expandable to a maximum capacity of 135 tons per day.
- C. A facility is needed to provide for disposal of lime sludge during the interim period that the recalcining plant is being constructed. It will also be needed to dispose of sludge during periods of plant shutdown or when plant capacity may be exceeded. However, such a facility has not been located or designed.

CONCLUSIONS

On the basis of the above facts and information it is concluded that:

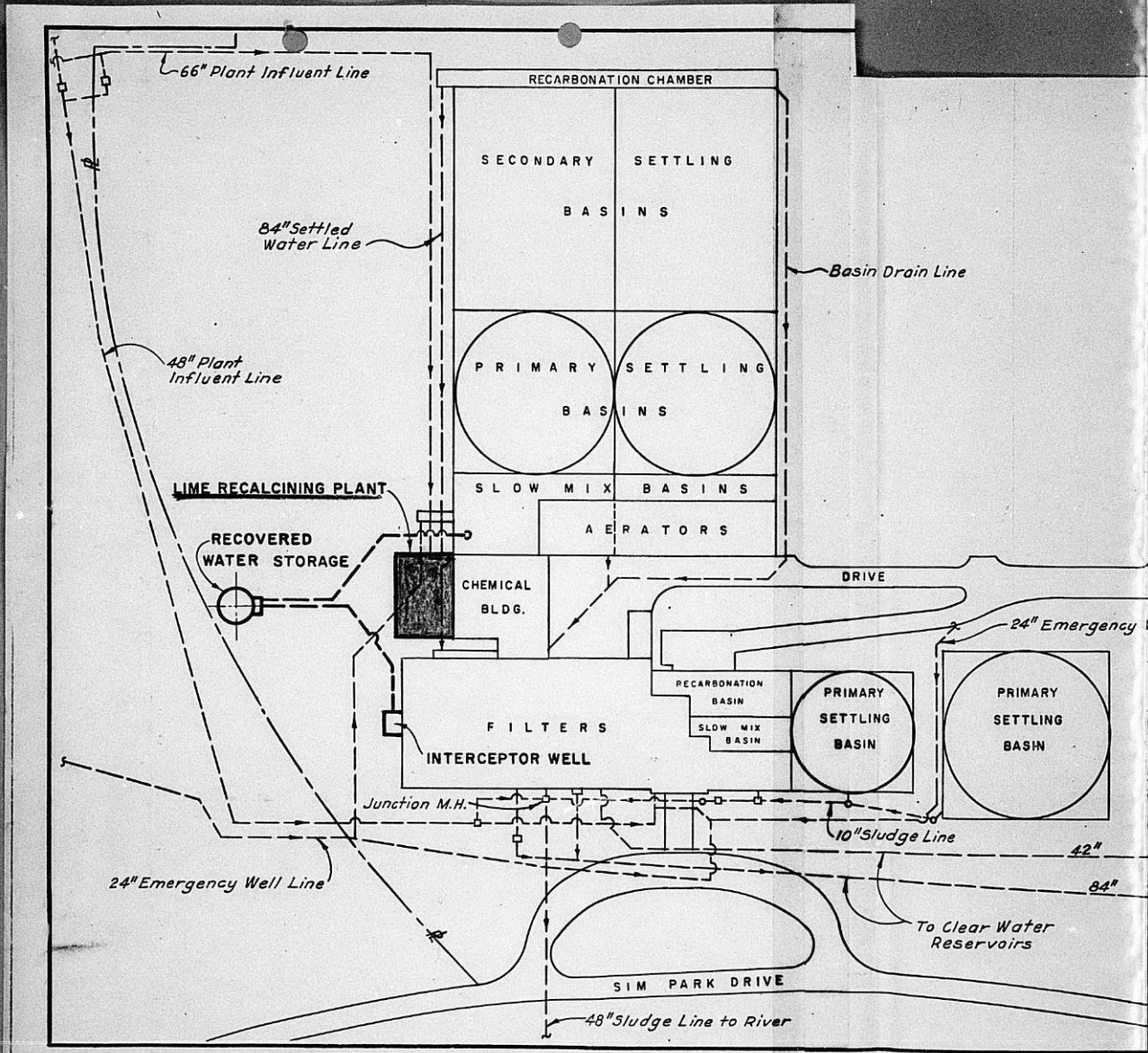
1. The discharging of lime sludge wastes into the Big Arkansas River should be discontinued.
2. The construction of a lime calcination plant appears to be the best solution and method for disposal of lime sludge wastes.
3. An additional facility such as a lagoon is needed where lime sludge can be discharged during the interim period that the recalcining plant is being constructed.
4. The construction of a lime recalcination plant adjacent to the water treatment plant does not conflict with any other like facility nor any elements of the Comprehensive Plan which is in the process of development.

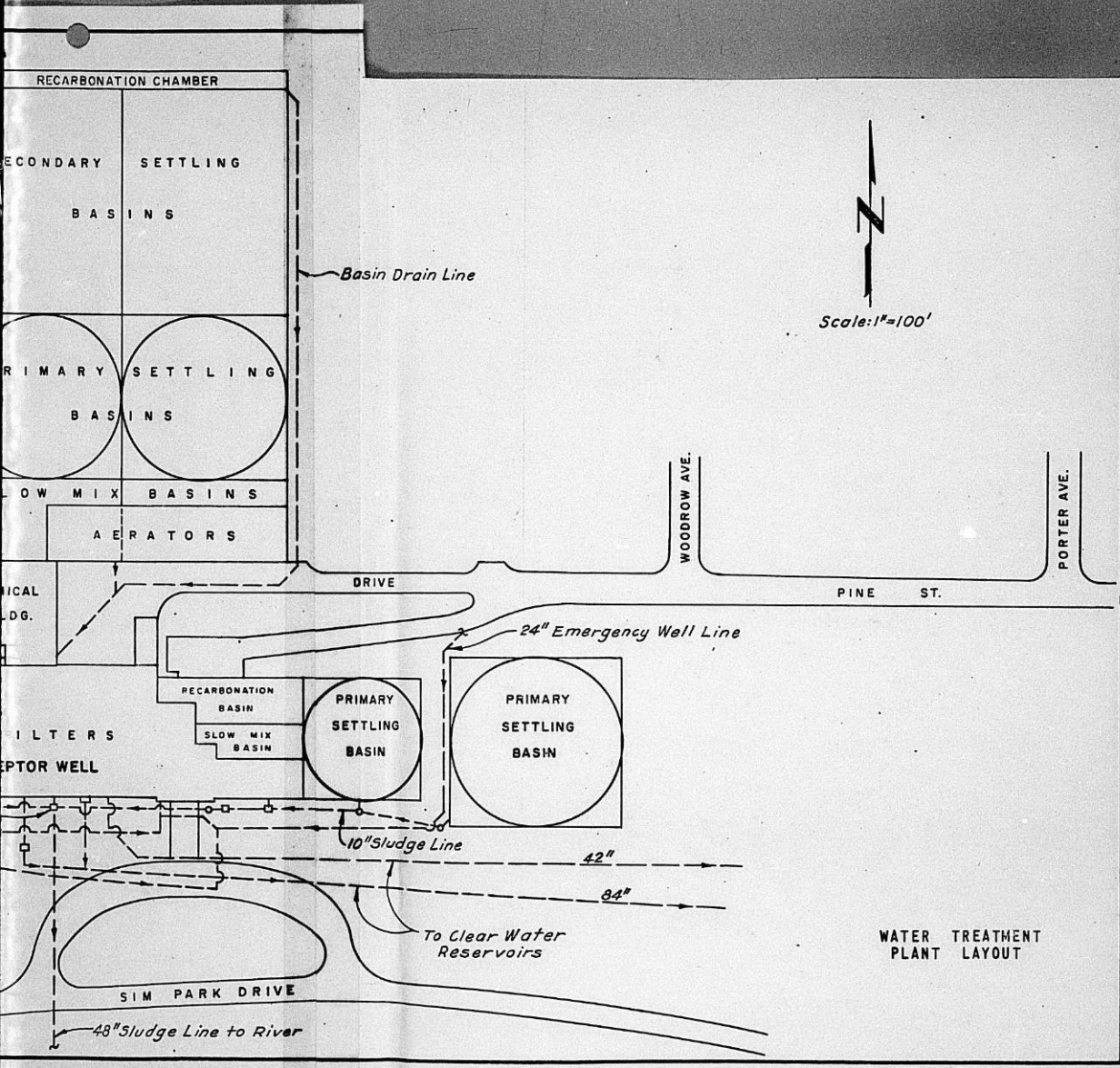
RECOMMENDATION

On the basis of the above statements and conclusions; it is recommended that the Wichita-Sedgwick County Metropolitan Area Planning Commission --

1. Consider this a preapplication review and that a complete application will be submitted, at a later date, which will be reviewed according to procedures established in Bureau of the Budget Circular A-95.
2. Approve the method of lime sludge disposal as outlined above with the understanding that the complete application will contain a specific location for a lime sludge lagoon and include improvement proposals covering access to the site, landscaping, fencing and any other improvements that may be contemplated for the disposal area.

JPL:bh





WATER TREATMENT PLANT LAYOUT

FIGURE 2

WICHITA-SEDGWICK COUNTY
METROPOLITAN AREA PLANNING COMMISSION

AGENDA

JANUARY 15, 1970

The regular meeting of the Wichita-Sedgwick County Metropolitan Area Planning Commission will be held on Thursday, January 15, 1970, in Room 401 City Building Annex, 104 South Main Street, Wichita, Kansas, at which time the following items will be considered:

1. Invocation by Rev. Rodney Stanbro, Bethel Assembly of God Church.

-
2. Approval of Minutes of regular meetings of November 13, 1969, November 26, 1969, and December 11, 1969, and special meeting of December 22, 1969.

-
3. DR 69-14 - Public Hearing for consideration of the final adoption of an amendment to the Transportation Plan Element of the Comprehensive Development Plan to include a plan for collector street system. The Plan was approved on October 23, 1969, and 60 days established to receive comments prior to final adoption. (Memo enclosed to Planning Commissioners.)

-
4. DR 69-31 - Request from the City Commission to amend Article V, Section 3, of the Wichita-Sedgwick County Metropolitan Area Planning Commission Bylaws to include the Chairman of the Sedgwick County Commission and the City Manager among those persons to receive notice of special meetings of the Planning Commission. (Memo enclosed to the Planning Commission.)

-
5. DR 69-19 - #204 Review of application by City of Wichita for Federal funds to be used toward construction of Lime Calcination plant. (Memo enclosed to Planning Commissioners.)
-

THE CITY OF WICHITA
OFFICE OF WATER & WPC

DATE January 5, 1970



TO Robert A. Lakin, Asst. Director of Planning
FROM Robert H. Hess, Director of Water & Water
Pollution Control
SUBJECT Agenda Item - Metropolitan Area
Planning Commission

The Department of Water and Water Pollution Control on behalf of the City of Wichita hereby requests that the Metropolitan Area Planning Commission review the attached preliminary federal grant application pursuant to Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966.

The grant request is for 1.5 million dollars for aid in construction of a lime recalcination plant and appurtenances necessary for the immediate and effective removal of lime softening sludge from the Arkansas River.

We will be happy to provide additional information or assistance as requested.

Hess
Robert H. Hess, Director
Water & Water Pollution Control

RHH:GWR:sc

Attachment

cc: Ralph Wulz, City Manager
James P. Looney, Planner III



PUBLIC INTEREST AND NECESSITY

The City of Wichita Water Treatment Plant was constructed in 1940 and has subsequently been expanded to meet the increased water needs of a growing city.

Coincident to this growth, there has been a corresponding increase in the generation of lime softening sludge, a waste product of the water treatment process. This waste product, presently being discharged into the Arkansas River, both discolors the river water and forms unsightly sludge banks in the stream bed. The sludge banks remain until they are subsequently swept downstream during periods of high water. This simple but unattractive method of disposal has long been criticized by concerned citizens as well as water and pollution abatement authorities.

The Kansas State Department of Health has notified the City of Wichita that the present method of disposing of lime sludge is in violation of the State water quality standards. The standards have been legislated to eliminate the discharge of any waste material into the rivers and streams of Kansas that might have a detrimental effect on the ecology of the stream beds.

The City of Wichita is undertaking a program of river beautification to develop a river corridor concept based on physical features, natural resources, land use, park and recreational areas, and incorporating a system of hiking trails, bikeways, bridle trails, and water oriented recreational areas.

One low water dam is now under construction at Lincoln Street and four more are planned to compliment the Arkansas River Beautification Program. Reservoirs created by these dams will extend from Broadway Street northward through the City approximately eight miles to a point above 21st Street. The lime sludge discharge to the river will accumulate behind the dams, thereby destroying the beauty of the impounded

waters as well as accelerating an ecological change in the stream bed.

As a result of increased awareness and concern of the pollution problem, and with the immediate necessity of taking action in conformance with the Arkansas River Beautification Program, the City of Wichita contracted with Black & Veatch Consulting Engineers on December 17, 1968 for a complete study and in-depth report of methods of eliminating lime sludge discharge to the Arkansas River. On July 29, 1969 the "Report On Water Treatment Plant Waste Disposal" was received and filed by the City Commission.

Findings and recommendations of that report are as follows:

The 1968 average annual water production rate was 35.2 million gallons per day with a maximum daily rate of 62.6 mgd and a minimum daily rate of 23.5 mgd. The maximum capacity of the existing water treatment plant is 112 mgd. This maximum plant capacity is projected to be reached by 1986 when the average annual production reaches 59.0 mgd.

The lime feed rate is approximately 890 pounds per million gallons of water for a composite raw water consisting of three parts equus bed water to one part Cheney Reservoir water. The resulting sludge is produced at a rate of approximately 2,400 pounds per million gallons of water processed. The resultant ratio of sludge produced to lime feed is 2.7 to 1.0.

At the present average annual water use rate of 35.2 mgd, 42.5 tons of sludge will be produced daily. At the maximum plant capacity of 112 mgd, the sludge production rate will be 135 tons per day.

There are two practicable means of sludge disposal available to the City of Wichita. (1) by lagooning and (2) by recalcining the sludge and reusing the product in the water treatment plant. The latter method has been found to be the more economical of the methods studied.

It is recommended that the City construct a lime recalcining plant adjacent to the chemical building at the existing

water treatment plant. The proposed plant will have an initial capacity of 70 tons per day input and will be expandible to a maximum capacity of 135 tons per day.

Pending the construction of the lime recalcining plant, facilities will be necessary to protect the low water dam now under construction at Lincoln Street. These facilities include a sludge holding tank, pumps, piping, force main, and a sludge lagoon. It is recommended that a lagoon site compatible with the comprehensive planned development of the metropolitan area be purchased and developed by the City.

The sludge lagoon will be of low capacity and should be operated without the lime recalcining plant for as short a period as possible. The facilities will be incorporated in permanent disposal facilities to be used during periods of plant shutdown for maintenance, when excess sludge is generated, or when the centrate from dewatering equipment cannot be recycled into the water treatment plant.

The filter backwash contains a significant amount of sludge solids which would be detrimental to the reservoirs created by the low water dams on the river. Therefore, it is recommended that sludge recovery facilities for the filter backwash water be constructed. These facilities will provide for the interception, temporary storage, sludge removal, and subsequent return of backwash water to the raw water flume.

Construction costs are as follows:

Lime recalcining plant cost	\$ 2,315,000.00
Lagoon purchase and development, force main and appurtenances complete	350,000.00
Electrical substation for lime recalcining plant	55,000.00
Wash water sludge recovery system	400,000.00
TOTAL	\$ 3,120,000.00

WICHITA-SEDGWICK COUNTY

DATE

METROPOLITAN AREA PLANNING DEPARTMENT

January 9, 1976



TO

FROM

SUBJECT

Wichita-Sedgwick County Metropolitan Area
Planning Commission
James P. Looney, Community Facilities Planner
Long Range Planning Division

Case DR 69-19 - Water Treatment Plant Waste Disposal

On Tuesday, July 29, the Board of City Commissioners approved a Report on "Water Treatment Plant Waste Disposal - Wichita, Kansas" by Black & Veatch, Consulting Engineers. The purpose of the study was to determine the most practical means for disposal of lime sludge wastes generated in the treatment of raw water at the Water Treatment Plant. Engineering analysis has found that the most practical and permanent arrangement would be the construction of a lime calcination plant.

The Board of City Commissioners directed the City Manager to proceed with steps toward filing an application for a Federal grant to aid in constructing this facility and also to acquire a site that would serve as an interim disposal area until the calcining plant could be constructed. As a result of the above administrative action the Department of Water and Water Pollution Control acting on behalf of the City of Wichita has indicated that a preliminary application will be filed with the Department of Housing and Urban Development (HUD) for Federal funds to be used toward construction of a Lime Calcination Plant at the existing Water Treatment Plant. It is their request that pursuant to Attachment "A", Part I of Bureau of the Budget Circular A-95, the project be reviewed to determine whether it conforms with elements of the Comprehensive Plan which are in the process of development for the Wichita-Sedgwick County Metropolitan Area.

BACKGROUND

As a result of chemicals being added to the raw water at the water treatment plant, there is a lime sludge residue which is presently discharged into the Big Arkansas River. The quantity of sludge varies with the quantity of water treated. Presently about 43 tons of sludge is produced daily and engineers have estimated that approximately 135 tons per day would be produced in 1986. The discharge of lime sludge into the river causes a discoloration of the water and also forms unsightly sludge banks in the stream bed. These sludge banks remain for long periods of time or until the river flow increases to the point where they are washed down

stream. Recent emphasis on stream pollution abatement as voiced by authorities at various levels of government and the river beautification program which is presently being initiated served to magnify the problem of what to do with lime sludge waste.

FINDINGS

A review of the consultant engineer's Report indicates that:

- A. There are two practical means of sludge disposal available to the City of Wichita; (1) by lagooning and (2) by recalcining the sludge and reusing the product in the water treatment plant. The latter method has been found to be the most economical of the two methods studied.
- B. The proposed project consists of constructing a lime calcination plant adjacent to the Chemical Building at the existing water treatment plant. The new facility will have an initial capacity of 70 tons per day sludge input and will be expandable to a maximum capacity of 135 tons per day.
- C. A facility is needed to provide for disposal of lime sludge during the interim period that the recalcining plant is being constructed. It will also be needed to dispose of sludge during periods of plant shutdown or when plant capacity may be exceeded. However, such a facility has not been located or designed.

CONCLUSIONS

On the basis of the above facts and information it is concluded that:

1. The discharging of lime sludge wastes into the Big Arkansas River should be discontinued.
2. The construction of a lime calcination plant appears to be the best solution and method for disposal of lime sludge wastes.
3. An additional facility such as a lagoon is needed where lime sludge can be discharged during the interim period that the recalcining plant is being constructed.
4. The construction of a lime recalcination plant adjacent to the water treatment plant does not conflict with any other like facility nor any elements of the Comprehensive Plan which is in the process of development.

RECOMMENDATION

On the basis of the above statements and conclusions; it is recommended that the Wichita-Sedgwick County Metropolitan Area Planning Commission --

1. Consider this a preapplication review and that a complete application will be submitted, at a later date, which will be reviewed according to procedures established in Bureau of the Budget Circular A-95.
2. Approve the method of lime sludge disposal as outlined above with the understanding that the complete application will contain a specific location for a lime sludge lagoon and include improvement proposals covering access to the site, landscaping, fencing and any other improvements that may be contemplated for the disposal area.

JPL:bh

THE CITY OF WICHITA
OFFICE OF WATER DEPARTMENT

DATE January 8, 1970



TO James P. Looney, Planner III
FROM Robert H. Hess, Director of Water

SUBJECT Case DR 69-19
Water Treatment Plant Waste Disposal

We recommend that Section 4, Page 4, be amended as follows:

4. That the method of disposal as outlined above be approved provided that the final selection, by the city, of a site for a sludge lagoon meet all requirements of the Metropolitan Area Planning Commission.

We also suggest that the word "wasted" which appears in the third sentence of the second paragraph on page 2 be changed to "discharged".

The same recommendation is made for the word "wasted" which appears in the second line of page 4.

RH
Robert H. Hess
Director of Water

RHH:bg





Figure No. 1

THE CITY OF WICHITA
OFFICE OF WATER & WPC

DATE January 5, 1970



TO Robert A. Lakin, Asst. Director of Planning

FROM Robert H. Hess, Director of Water & Water
Pollution Control

SUBJECT Agenda Item - Metropolitan Area
Planning Commission

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The grant request is for 1.5 million dollars for aid in construction of a lime recalcination plant and appurtenances necessary for the immediate and effective removal of lime softening sludge from the Arkansas River.

We will be happy to provide additional information or assistance as requested.

RHess
Robert H. Hess, Director
Water & Water Pollution Control

RHH:GWR:sc

Attachment

cc: Ralph Wulz, City Manager
James P. Looney, Planner III

PUBLIC INTEREST AND NECESSITY

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Coincident to this growth, there has been a corresponding increase in the generation of lime softening sludge, a waste product of the water treatment process. This waste product, presently being discharged into the Arkansas River, both discolors the river water and forms unsightly sludge banks in the stream bed. The sludge banks remain until they are subsequently swept downstream during periods of high water. This simple but unattractive method of disposal has long been criticized by concerned citizens as well as water and pollution abatement authorities.

The Kansas State Department of Health has notified the City of Wichita that the present method of disposing of lime sludge is in violation of the State water quality standards. The standards have been legislated to eliminate the discharge of any waste material into the rivers and streams of Kansas that might have a detrimental effect on the ecology of the stream beds.

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It is recommended that the City construct a lime recalcining plant adjacent to the chemical building at the existing

water treatment plant. The proposed plant will have an initial capacity of 70 tons per day input and will be expandible to a maximum capacity of 135 tons per day.

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The sludge lagoon will be of low capacity and should be operated without the lime recalcining plant for as short a period as possible. The facilities will be incorporated in permanent disposal facilities to be used during periods of plant shutdown for maintenance, when excess sludge is generated, or when the centrate from dewatering equipment cannot be recycled into the water treatment plant.

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Lime recalcining plant cost	\$ 2,315,000.00
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Electrical substation for lime recalcining plant	55,000.00
Wash water sludge recovery system	400,000.00
TOTAL	\$ 3,120,000.00

THE CITY OF WICHITA
OFFICE OF WATER DEPARTMENT

DATE August 27, 1969



TO Robert A. Lakin, Assistant Planning Director
FROM Robert H. Hess, Director of Water

SUBJECT DR 69-19 - Lime Calcinating Plant

This is in response to your memorandum of August 12, 1969 regarding the above subject.

After reviewing your memorandum and visiting with Jim Aiken, Environmental Health Director, we decided to wait for public opinion or resentment to force the planning and construction of lime sludge disposal facilities.

We did not stress the need for the borrow pit between I-235 and the Wichita-Valley Center Flood Control right-of-way during the City Commission meeting Tuesday, August 26, 1969.

Hess
Robert H. Hess
Director of Water

RHH:bg

cc: James Aiken, Environmental Health Director
John Wynkoop, Operations Chief Engineer
F. E. Withrow, Jr., Hydrologist
James P. Looney, Planner III



*Noted: 8-28-69
GPP*

THE CITY OF WICHITA
OFFICE OF WATER DEPARTMENT

DATE August 27, 1969

TO Robert A. Lakin, Assistant Planning Director
FROM Robert H. Hess, Director of Water



SUBJECT UR 69-15 - Lime Calcinating Plant

This is in response to your memorandum of August 12, 1969 regarding the above subject.

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RHess
Robert H. Hess
Director of Water

RHH:bg

cc: James Aiken, Environmental Health Director
John Wynkoop, Operations Chief Engineer
F. E. Withrow, Jr., Hydrologist
James P. Looney, Planner III ✓



WICHITA-SEDGWICK COUNTY

DATE

August 12, 1969

METROPOLITAN AREA PLANNING DEPARTMENT



TO Wichita-Sedgwick County Metropolitan Area
Planning Commission

FROM James P. Looney, Community Facilities Planner
Long Range Planning Division

SUBJECT Water Treatment Plant Waste Disposal - DR 69-19

On Tuesday, July 29, the Board of City Commissioners approved a Report on "Water Treatment Plant Waste Disposal - Wichita, Kansas" by Black & Veatch, Consulting Engineers. The purpose of the study was to determine the most practical means for disposal of lime sludge wastes generated in the treatment of raw water at the Water Treatment Plant. Engineering analysis has found that the most practical and permanent arrangement would be the construction of a Recalcining Plant. The Board of City Commissioners directed the City Manager to proceed with steps toward filing an application for a Federal grant to aid in constructing this facility and also to acquire a site that would serve as an interim disposal area until the calcining plant could be constructed.

As a result of the above administrative action, Mr. Robert H. Hess, Director of Water, has requested that the proposal to construct a lime recalcining plant be reviewed under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966. This review is to determine whether the project is in conformance with elements of the Comprehensive Plan which are in the process of development for the Wichita-Sedgwick County Metropolitan Area. Design criteria and engineering detail performed by the consulting engineer were not a part of the review as they were not considered a responsibility of the planning agency. Results of the review follow.

- A. The proposed project consists of constructing a lime recalcining plant adjacent to the Chemical Building at the existing water treatment plant. The new facility will have an initial capacity of 70 tons per day sludge input and will be expandable to a maximum capacity of 135 tons per day.

The City would need to acquire a suitable site for use as a sludge lagoon which would accommodate the disposal of excess sludge during periods of plant shutdown and also would receive the sludge disposal wastes during the interim period that the recalcining plant is under construction. The area under consideration for this purpose is a sandpit situated between Interstate Highway I-235 and the Wichita-Valley Center Floodway at

9th Street (extended) approximately 3 miles west of the Water Treatment Plant. This site contains approximately 27 acres, 15 acres of which may be utilized with little development expense.

- B. Recalcination is the process of converting the lime sludge wastes into calcium oxide (lime) and carbon dioxide. The end product is lime pellets which are saleable or which can be stored for extended periods of time and reused in the water treatment process. It has also been determined that the recalcining plant will produce sufficient carbon dioxide for use in the water treatment process and that the existing equipment now used may be retired and used only as standby equipment.
- C. 1. The plant will be constructed of reinforced concrete below grade and masonry above grade. It will be faced with brick which will match as nearly as possible the existing brickwork of the Chemical Building.
2. The structure will be approximately 60 feet high. Within the structure will be a reactor constructed of a large vertical steel cylinder lined with fire brick. Temperatures within the reactor will reach 1500 to 1600 degrees Fahrenheit.
3. Fuel for the reactor will be natural gas. It has been stated by personnel in the Water Department that no smoke or obnoxious gases will be released into the atmosphere. It was stated that water vapor would be discharged from the chimney, but it would very likely not be noticeable.
4. The reactor furnace would produce a noise; however, it would be a low level sound and would be dampened by the masonry walls surrounding the reactor. Also, the facility is isolated to the extent that any audible noise outside the structure would not be offensive to any other structure or building in the area.
5. This facility would not be a traffic generator and it will not duplicate any other similar facility in the area.
6. Engineers recommend that construction of the plant be initiated as soon as possible in order that it may be completed by 1971. They estimate it will take two years to design and construct the new plant.

- D. The total estimated construction cost for the recalcining plant, the sludge lagoon facilities and for a filter backwash water recovery unit would be \$3,065,000. The City intends to apply for a Federal grant for approximately 50% of this amount.
- E. Reports prepared by the Planning Department several years ago indicated that the disposal of lime sludge was a very difficult problem which needed to be solved, and it was recommended that a calcining plant be constructed. However, the treatment process at the Water Plant was improved to where it appeared that construction of the expensive Calcining Plant could be postponed for several years. As the City has grown and water consumption has increased, there has been a corresponding increase in the amount of sludge produced. With a program of river beautification in progress and with increasing emphasis to clean up the rivers and streams, the waste material can and should no longer be disposed of in the Arkansas River.

For the purpose of planning water treatment facilities, a Lime Calcining Plant would be considered a necessary requirement and an accessory to the total treatment plant facility. However, the Utility Facility Plan Report which was prepared in 1965 does refer to the need for a solution to the sludge disposal problem and it does indicate that a Lime Calcining Plant would be one way of remedying the problem. The recent report by the consulting engineers verifies these statements.

CONCLUSION

On the basis of the above facts and statements, it is concluded that: (1) the project does not conflict with any Comprehensive Planning in progress for the Wichita-Sedgwick County Metropolitan Area; (2) that construction of the project will eliminate one source of pollution in the Arkansas River and that it will serve to facilitate the beautification program currently underway, and (3) the project will not conflict with nor will it duplicate any other like facility in the Metropolitan Area; (4) it appears desirable that a chain link fence with three strands of barbed wire be constructed around the sandpit which is proposed for temporary sludge disposal and also that this site be screened from the Interstate Highway I-235 by a series of tree plantings and landscaping.

RECOMMENDATION

On the basis of the above conclusions and statements, it is recommended that the Wichita-Sedgwick County Metropolitan Area Planning Commission certify that:

Page 4 - Metropolitan Area Planning Commission
August 12, 1969

1. The proposed construction of a Lime Calcining Plant and acquisition of land for a temporary waste disposal area does not conflict with the Comprehensive Plan which is in the process of development for the Wichita-Sedgwick County Metropolitan Area.
2. The project does comply with the short and long-range areawide water plan for improving the system to better serve the Metropolitan Area and the urbanized areas in the near vicinity.
3. The project would be in accordance with the pollution abatement program specified by the Kansas State Board of Health for eliminating pollution of the rivers and streams and it would further comply with the requirements for river beautification in the area.
4. A chainlink fence be built around the disposal site and the site be screened from Interstate Highway I-235 by planting appropriate trees.

JPL:ber

APPROVED BY:

Robert A. Iakin
Assistant Planning Director

August 12, 1969

Wichita-Sedgwick County Metropolitan Area
Planning Commission

James P. Looney, Community Facilities Planner
Long Range Planning Division

Water Treatment Plant Waste Disposal - DR 69-19

On Tuesday, July 29, the Board of City Commissioners approved a Report on "Water Treatment Plant Waste Disposal - Wichita, Kansas by Black & Veatch, Consulting Engineers. The purpose of the study was to determine the most practical means for disposal of lime sludge wastes generated in the treatment of raw water at the Water Treatment Plant. Engineering analysis has found that the most practical and permanent arrangement would be the construction of a Recalcining Plant. The Board of City Commissioners directed the City Manager to proceed with steps toward filing an application for a Federal grant to aid in constructing this facility and also to acquire a site that would serve as an interim disposal area until the calcining plant could be constructed.

As a result of the above administrative action, Mr. Robert H. Hess, Director of Water, has requested that the proposal to construct a lime recalcining plant be reviewed under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966. This review is to determine whether the project is in conformance with elements of the Comprehensive Plan which are in the process of development for the Wichita-Sedgwick County Metropolitan Area. Design criteria and engineering detail performed by the consulting engineer were not a part of the review as they were not considered a responsibility of the planning agency. Results of the review follow.

- A. The proposed project consists of constructing a lime recalcining plant adjacent to the Chemical Building at the existing water treatment plant. The new facility will have an initial capacity of 70 tons per day sludge input and will be expandable to a maximum capacity of 135 tons per day.

The City would need to acquire a suitable site for use as a sludge lagoon which would accommodate the disposal of excess sludge during periods of plant shutdown and also would receive the sludge disposal wastes during the interim period that the recalcining plant is under construction. The area under consideration for this purpose is a sandpit situated between Interstate Highway I-235 and the Wichita-Valley Center Floodway at

9th Street (extended) approximately 3 miles west of the Water Treatment Plant. This site contains approximately 27 acres, 15 acres of which may be utilized with little development expense.

- B. Recalcination is the process of converting the lime sludge wastes into calcium oxide (lime) and carbon dioxide. The end product is lime pellets which are saleable or which can be stored for extended periods of time and reused in the water treatment process. It has also been determined that the recalcining plant will produce sufficient carbon dioxide for use in the water treatment process and that the existing equipment now used may be retired and used only as standby equipment.
- C.
1. The plant will be constructed of reinforced concrete below grade and masonry above grade. It will be faced with brick which will match as nearly as possible the existing brickwork of the Chemical Building.
 2. The structure will be approximately 60 feet high. Within the structure will be a reactor constructed of a large vertical steel cylinder lined with fire brick. Temperatures within the reactor will reach 1500 to 1600 degrees Fahrenheit.
 3. Fuel for the reactor will be natural gas. It has been stated by personnel in the Water Department that no smoke or obnoxious gases will be released into the atmosphere. It was stated that water vapor would be discharged from the chimney, but it would very likely not be noticeable.
 4. The reactor furnace would produce a noise; however, it would be a low level sound and would be dampened by the masonry walls surrounding the reactor. Also, the facility is isolated to the extent that any audible noise outside the structure would not be offensive to any other structure or building in the area.
 5. This facility would not be a traffic generator and it will not duplicate any other similar facility in the area.
 6. Engineers recommend that construction of the plant be initiated as soon as possible in order that it may be completed by 1971. They estimate it will take two years to design and construct the new plant.

- D. The total estimated construction cost for the recalcining plant, the sludge lagoon facilities and for a filter backwash water recovery unit would be \$1,065,000. The city intends to apply for a Federal grant for approximately 50% of this amount.
- E. Reports prepared by the Planning Department several years ago indicated that the disposal of lime sludge was a very difficult problem which needed to be solved, and it was recommended that a Calcining plant be constructed. However, the treatment process at the Water Plant was improved to where it appeared that construction of the expensive Calcining Plant could be postponed for several years. As the City has grown and water consumption has increased, there has been a corresponding increase in the amount of sludge produced. With a program of river beautification in progress and with increasing emphasis to clean up the rivers and streams, the waste material can and should no longer be disposed of in the Arkansas River.

For the purpose of planning water treatment facilities, a Lime Calcining Plant would be considered a necessary requirement and an accessory to the total treatment plant facility. However, the Utility Facility Plan Report which was prepared in 1965 does refer to the need for a solution to the sludge disposal problem and it does indicate that a Lime Calcining Plant would be one way of remedying the problem. The recent report by the consulting engineers verifies these statements.

CONCLUSION

On the basis of the above facts and statements, it is concluded that: (1) the project does not conflict with any Comprehensive Planning in progress for the Wichita-Sedgwick County Metropolitan Area; (2) that construction of the project will eliminate one source of pollution in the Arkansas River and that it will serve to facilitate the beautification program currently underway, and (3) the project will not conflict with nor will it duplicate any other like facility in the Metropolitan Area; (4) it appears desirable that a chain link fence with three strands of barbed wire be constructed around the sandpit which is proposed for temporary sludge disposal and also that this site be screened from the Interstate Highway I-235 by a series of tree plantings and landscaping.

RECOMMENDATION

On the basis of the above conclusions and statements, it is recommended that the Wichita-Sedgwick County Metropolitan Area Planning Commission certify that:

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August 12, 1969

1. The proposed construction of a Lime Calcining Plant and acquisition of land for a temporary waste disposal area does not conflict with the Comprehensive Plan which is in the process of development for the Wichita-Sedgwick County Metropolitan Area.
2. The project does comply with the short and long-range areawide water plan for improving the system to better serve the Metropolitan Area and the urbanized areas in the near vicinity.
3. The project would be in accordance with the pollution abatement program specified by the Kansas State Board of Health for eliminating pollution of the rivers and streams and it would further comply with the requirements for river beautification in the area.
4. A chainlink fence be built around the disposal site and the site be screened from Interstate Highway I-235 by planting appropriate trees.

JPL:bar

APPROVED BY:

Robert A. Lakin
Assistant Planning Director

WICHITA-SEDGWICK COUNTY

DATE
August 12, 1969

METROPOLITAN AREA PLANNING DEPARTMENT

TO Robert H. Hess, Director of Water & Water
Pollution Control
FROM Robert A. Lakin, Assistant Planning Director *RL*
SUBJECT DR 69-19 - Lime Calcinating Plant

Since our meeting the other day, I have continued to mull over the problem of the Water Treatment Plant Waste Disposal Report in which you propose to build a lime calcinating plant together with disposal facilities for the sludge during the interim period and for periods of plant shutdown and maintenance. I am still concerned about the general problem of making such an expenditure to remove a "blighting" and/or "environmental" problem from the Big Arkansas River, and by doing so in turn creating another blighting situation elsewhere. There seems to be no black and white answers to the degree of blight that is caused, either on the River or that would be caused by use of the borrow pit at I-235 and Central. Because the problem of blighting appears to be aesthetic and/or ecological in nature, I have asked our staff working on the beautification plan to comment, and by a copy of this memo I am asking for Jim Aiken to comment on the environmental and ecological programs involved.

It would seem to me that some of the alternate solutions and/or concurrent actions would still be as follows. Assume that a lime calcinating plant has been sufficiently justified from an economic standpoint to build, irrespective of how the sludge and excess input into the plant is handled, thus, the cost of chemical purchases and efficiency of operation would be independent of the sludge problem that I am concerned with. This, then, leaves four alternatives.

1. Continue dumping the sludge into the River, assuming that the degree of pollution, particularly when the water is dammed, is insufficient to cause a major environmental or ecological problem. This solution should be a good deal more acceptable if it is only on an interim basis for another two or three years while the plant is being built and only for such periods as when the plant is not in operation. Thus, the amount of effluent or sludge being placed in the water would be substantially reduced from that which is currently occurring. It would seem to me that at the time that a second dam is built upstream on the Arkansas River, that the problem is even further reduced as there will be more water into which this material can be placed.

COPY

The very worst that would appear to happen is a discoloration of water. This may be a problem in the eyes of some people but not in my opinion, based on the cost that appears in the report. People should not be in this water and if any use of the water is made, it should be by boat rather than people actually being in the water. The cost expended in pipeline and land acquisition for the sludge could be used as an alternate to build the dam and provide a sufficient ponding and input area for the sludge on an interim and/or temporary basis.

2. Construct the pipeline downstream to a point beyond where we expect to construct dams. This would merely transfer the problem but it would transfer it to an area which is less readily accessible, both visually and physically. At such time as additional dams are built downstream, the pipelines could then be extended to the next point downstream to where the sludge would not be a problem. This would eliminate the blighting of a tract of land along a highly visible area adjacent to the interstate.
3. If the borrow pit is used and a pipeline constructed to this site, then we would think that both a landscape plan (prepared by competent landscape architects) and a reuse plan should be prepared. The landscape plan would be for the sole purpose of screening the site from the Interstate. This type of planting and landscaping plan should use plant materials as the primary source of screening, with particular emphasis on the use of plant material which is either mature or of good-sized stock. Such a landscape plan should be fairly dense and not of the scattered tree type which merely distracts the eye but will not hide. Some question has been raised as to whether there is sufficient area alongside the borrow pit in which to make such plantings. If there is not, then we would suggest that additional dirt be removed from the fill to provide the base for such an area and that overburden be supplied in order to make a planting strip available.

Also to this end, we would suggest that you give consideration to removing additional material from the borrow pit to a depth of 10 feet or more so that: (1) there will be more capacity and that a re-occurrence of the problem of locating a site will be deferred the maximum time possible; (2) that a sufficient amount of overburden (2 feet thick) would be available to cover over the sludge areas, both to keep the material from blowing and to ultimately restore the area to some type of use. It is possible that this area could be used as a turnout for recrea-

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tional facilities which we hope to establish along the flood control ditch. Ultimately it might be used for parking of cars, picnic tables, water, restroom areas, etc. Thus, we think a reuse plan is needed to identify storage areas, quantities of top soil needed, grading, etc. In addition, the costs involved in this type of treatment should be included in your estimates and financing schedule.

4. Pipe and dump the sludge into the flood control structure. I am sure that there must be 300,000 reasons, the most vocal of which will be Mitchell, as to why this could not be done. This would not seem to be particularly preferable either, because the potential for development for recreational purposes would seem to far outweigh the potential for using this area for dumping of sludge. It would be my assumption that the sludge would be flushed downstream during periods of high water. I would assume also that there would be no adverse affects on the capability of the flood control structure to carry water, particularly if this sludge were spread and moved out along the water course through a flushing process. This probably is the least acceptable of all the solutions that I have heard, but it is one more that has not been mentioned.

I would like to have Jim Aiken evaluate some of these proposals and submit any comments that he might have as to how we might solve this problem. I trust that there is no great emergency on this project and that we will have time to discuss it between Aiken, yourself and our Department.

RAL:ber

cc: James Aiken, Environmental Health Director
John Wynkoop, Operations Chief Engineer
F. E. Withrow, Jr., Hydrologist
xJames P. Looney, Planner III

August 12, 1969

Robert H. Hess, Director of Water & Water
Pollution Control
Robert A. Lakin, Assistant Planning Director

DR 69-19 - Lime Calcinating Plant

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RAL:ber

cc: James Aiken, Environmental Health Director
John Wynkoop, Operations Chief Engineer
F. E. Withrow, Jr., Hydrologist
James P. Looney, Planner III

Gene
Sellers/ Home Calcinating
Plant
DR-
12/69

Bob:

I would offer the following comments on your memo to Bob Hess:

First, I would go for your proposal No. 1 or 2 with preference to No. 2 and not build the calcinating plant in either case.

With respect to proposal #3 - agree to use of the sand pit only for disposal of excess lime sludge or for disposal when plant is shut down - and no use of pit until calcinating plant is constructed and placed in operation and in addition - it be agreed that

1. The area will be landscaped as you propose
2. the pit be deepened to 10 feet below natural bank ~~line~~ elevation
3. If and when the pit becomes filled - a cover of 2 feet thick of earth (not sand) be placed over it as a final cover for sanitary landfill and the area planted to grass

Proposal #4 would present problems - there is not much water in the floodway to cover the sludge, I believe it would dry out and become a real dust problem - every little breeze would blow it around.