

EPA Comments and Questions on Grand Junction  
Projects to Date \_\_\_\_\_.

BILL ROTHENMEYER  
EPA

1. I feel that this office should inform the City of Grand Junction of the new Act Amendments concerning land treatment and how they might apply to this project. These changes in regulations may encourage Grand Junction to take a closer look at land treatment.

2. The guidelines in Criteria Used in the Review of Waste Water Treatment Facilities, the Colorado Department of Health's design criteria for waste water works, specify that for waste stabilization ponds, "The soil formation or structure of the bottom and dikes should be relatively tight to avoid excessive liquid loss due to percolation or seepage." This does not call for the use of a PVC-type lining to prevent all seepage. The supplement listed salinity and public health concerns as reason for lining the treatment and storage lagoons which are part of the land treatment alternative. Soils at the proposed site will have to be studied and the extent to which percolation can be reduced by compaction must be determined. Public health reasons for lining the lagoon with PVC must be documented. Also, quantitative data on salinity would be necessary. The amount of salinity in the Colorado River which will be caused by lagoon seepage should be compared with the amount which will occur on the same land area if it is irrigated using conventional methods.

3. If a mechanical treatment plant is built, due to the endangered species in the Colorado River, the plant must be designed to meet Reliability Class I as specified in Design Criteria for Mechanical, Electric, and Fluid System and Component Reliability by EPA. Reliability Class I is recommended for "Waters which discharge into navigable waters and could permanently or unacceptably be damaged by effluent which was degraded in quality for only a few hours." The control of toxics, such as chlorine and ammonia, is especially critical. The preliminary design and the cost estimates should be based on this level or reliability.

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4. The description of proposed irrigation and storage sites is insufficient. Soil and groundwater information should be given as well as land use information for potential sites. A more detailed map should be made of the potential sites and their surrounding areas. A site made up of land presently used for irrigated agriculture should be considered.

5. In a land application alternative the possibility of leasing land to farmers for crop production should be considered.

6. Alternate 4, land treatment and use of the existing plant, is well within the cost range of the other treatment alternatives and even appears to be of lower cost than the recommended alternative.

Since the land treatment alternative will provide several advantages including greater reliability and a greatly reduced pollutant loading on the Colorado River, we should encourage the selection of this alternative.

*Cost-benefit  
no sec. treat  
may be needed*

7. The cost for the land treatment system could be further reduced if the proposed secondary pretreatment system was dropped (this was discussed in my Grand Junction Memo dated 11/13/77) and if the underdrain system was dropped. The consultant must fully document the need of each of these if they are to be included in the Predesign Report.

8. The Supplement also stated that if the land treatment system was used, there would be an increased salinity problem in the Colorado River. It appears that the land treatment system could be used on land which is presently irrigated. It would not appear that this would cause a salinity problem. The consultant should further explain this.

*overflows*

9. Questions 2, 8, and 9 of my Grand Junction comments from the Memo dated 11/3/77 no longer apply.

10. The ammonia data was not sufficient. A policy decision must be made within EPA as to how to resolve this problem.

11. Page 2 of the supplement report stated that the detention pond would detain combined sewage and storm water runoff for treatment during dry weather flows. This appears to be a typographical error.

Will this system eliminate all combined sewer overflows in the planning area? If not, the remaining overflows should be listed and their frequency, strength and effect of the overflows should be analyzed.

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12. Breakpoint chlorination during summer periods to achieve ammonia reduction was given as the treatment method in the selected alternative. Lime would also be added to adjust the pH. The increase of TDS caused by this treatment process should be evaluated.

13. The O&M cost should be broken down to show the chemical costs, power costs, labor costs, etc. The staffing requirements should be described.

14. If the alternative of a mechanical plant is used, other alternative treatment methods for nitrification should be studied. At a minimum, this should include extended aeration rotating biological discs, and ABF towers.

15. The following are my concerns about the subject project. Foremost among these concerns is that the project, as it stands now, may be in violation of the Endangered Species Act and the National Environmental Policy Act.

Rare & Endangered Species. In letters dated May 28 and August 13, 1976, the National Wildlife Federation expressed serious concerns about the effects of the proposed action on endangered fish species. These concerns specifically addressed the possible impacts of unionized ammonia and chlorine discharges and the effects of the location of proposed interceptors and the proposed treatment plant (at that time this was to be a 3.5 mgd phase I, 6.7 mgd phase 2 plant). I emphasize the site considerations because to date most discussion within EPA has emphasized the question of discharges and overlooked the other concerns articulated by the Federation.

EPA is required by the Endangered Species Act of 1973 to take "such action as is necessary to insure that actions authorized, funded or carried out . . . [by federal agencies] . . . do not jeopardize the continued existence. . ." of endangered species, including designated critical habitat areas of endangered species. Our EIS regulations also require that we give special attention to endangered species and their habitat in water quality and facilities planning activities (40 CFR Part 6.510 (c)). The burden of proof that these actions will not adversely affect endangered species and critical habitat areas rests clearly on our shoulders, and to proceed without documenting these assurances places us squarely in violation of the cited laws and regulations.

EPA is committed to dealing with the unionized ammonia/chlorine residuals issue and I believe that we are also committed to examining the site specific impacts of interceptors and treatment facilities (see Jim Sanderson's memo of April 28, 1976, copy attached). So far as I have been able to determine, however, the necessary instream studies of the unionized ammonia/chlorine residuals question have not been conducted. Furthermore, upon reviewing the Predesign Report,

the Facility Plan and the Negative Declaration/Environmental Assessment for the project, I have found no evidence that adequate studies of the impacts of the proposed interceptors and treatment facilities on endangered species have been made.

Since the Predesign Report proposes to substitute the facilities proposed in the 201 plan with a larger (12.5 mgd initially; ultimately 25.0 mgd) regional plant, I believe that a careful analysis of both the discharge and the site is critical. No further funding or approvals should be given to this project before the impacts of discharges (including possible mechanical failure and stormwater flows from Grand Junction and discharges from other municipalities - eg. Clifton and Fruita - that may affect habitat conditions in the study area), and the location and construction of the proposed treatment plant and interceptors have been thoroughly analyzed and mitigated pursuant to the requirements of the Endangered Species Act and NEPA.

NEPA Compliance. In addition to the questions raised above, my NEPA concerns fall into two general categories. First, I believe that certain aspects of the original negative declaration/environmental assessment are inadequate, Specifically those relating to the site analyses for treatment facilities and interceptors, the impacts of river crossings, and the consideration of primary and secondary impacts on the Walter Walker Wildlife Refuge. My second NEPA concern is procedural. Highly significant changes in the character of the project have been made since the public had an opportunity to review and comment on the environmental assessment/negative declaration, and further changes may be necessary if EPA chooses to press for a land treatment alternative consistent with the Administrator's memorandum of October 3, 1977. Because of these factors, I believe that, as an absolute minimum, a revised environmental assessment and negative declaration should be circulated for public review, although I think that the endangered species question alone may warrant preparation of an EIS.

Land Treatment. The discussion of land treatment alternatives does not appear to do justice to the potential that some land treatment alternatives seem to offer. This is especially true of treatment and reuse, which may in fact be less costly than the selected alternative. This alternative is attractive because it is in keeping with EPA and state policy to encourage land treatment. It could also eliminate a wastewater discharge in the Colorado River. One thing is clearly evident, however; the consultants could have done a better job of analyzing a land treatment alternative that suits the area and they could have done a better job of selling the concept to irrigation users.

I suggest that the team consider requiring another try at developing an environmentally sound land treatment alternative that is consistent with the administrator's October 3, 1977, memo on the subject. ~~This study to determine the feasibility of construction and the design and construction of the proposed alternative to existing and proposed land treatment alternatives.~~ In addition to providing the environmental analyses that may be required because of other EIS issues mentioned above, the ~~alternative~~ <sup>letter</sup> approach would provide reviewers with an opportunity to compare the proposed treatment alternatives with a well thought out land treatment alternative.

Land Use Conflicts. Two potential land use conflicts may develop as a result of the proposed action. First, the document refers odor problems of the present treatment facilities. Because of the possible odor problems with any treatment facility adequate zoning against conflicting land uses around any new facilities should be required as a condition for receiving any further funds or approvals from EPA. The second potential land use conflict lies in the proposed Paradise Hills service area, which includes Grand Junction's municipal airport. This area should not be served by EPA funded facilities until an adequate airport noise survey has been conducted and measures have been taken to assure that incompatible land uses will not encroach on the airport as both the city and the operations at the airport grow in the future.

Population. The population projections envision more than a twofold increase in population by 1990 and a threefold increase by the year 2000. Clearly this is a very rapid rate of growth that may entail significant impacts on many aspects of the local environment. These impacts are not, however, dealt with in the environmental assessment/negative declaration. By virtue of EPA's participation in the funding of sewage treatment facilities needed in order to serve this population, I believe that we have a responsibility to analyze and mitigate these impacts to the extent that it is possible to do so. I do not believe that this has been done.

Public Disclosure of Costs. The plan does not satisfy the required public disclosure of costs pursuant to Program Requirements Memorandum 763. This disclosure must include estimated monthly costs of operation and maintenance, debt service charge, connection charges and service charges to a typical residential customer, etc. I realize that the original (1976) 201 plan may be exempt from these requirements, however, since the proposed action is a new (August 1977) one, is it not subject to these requirements?

16 I offer the following comments regarding the Grand Junction Pre-design Report:

I was particularly concerned about the approach to the land treatment issue. I did not have a copy of the letter sent to the Grand Valley Irrigation Company with which to substantiate my feelings but I rather suspect the inquiry about land treatment was presented in a very negative manner. It is my sincere belief that many of the concerns of the Grand Valley Irrigation Company, i.e. psychological effect, effect on human consumption, stock feed, stock water, and possible structural damage to irrigation system, could be alleviated with an accurate presentation of the facts and viable alternatives.

In addition, the re-evaluation of the abandonment of the existing 5.7 mgd plant should be undertaken. It may prove to be more cost effective to upgrade the existing plant in lieu of the potential use of land treatment.



17. Page II-3 of the report stated that there are industrial wastewater contributors which discharge into the collection system. The report should give more information on the number and type of industries and should give information on the volume and characteristics of the industrial waste flows.

18. Page IV-7 of the report stated that in the future, flows in excess of the proposed River Road interceptor will be bypassed into the Colorado River. The report should estimate the frequency, volume, and strength of these discharges and analyze their effect on the Colorado River.

Since the plan calls for abandoning the existing plant, the use of this plant for the retention and/or partial treatment should be considered.

19. Pages VI-20 - VI-22 of the report stated that sewer odors, including hydrogen sulfide odors were expected to be a problem at the influent section of the plant. In order to control the odor problem, the report selected the alternative of containing odors and treating them using adsorption by activated carbon. Hydrogen sulfide when produced in the interceptors forms sulfuric acid which will cause corrosion damage. The report should evaluate potential corrosion problems within the interceptor lines and reevaluate the use of source control of odors and hydrogen sulfide.

20. All entities which the proposed plant will be designed to take in should be required to sign legally enforceable contracts to tie into the system. In addition, a plan should be worked out in order to provide for enforcement of an industrial waste ordinance and sewer use ordinance for the system.

21. The report calls for interceptor sewers which cross the Colorado River. Before construction, a Section 404 permit must be obtained from the Army Corps of Engineers. The report should also address possible adverse environmental effects of the river crossings and mitigation of these effects.

22. The cost of the system should be broken down in order to show the cost per user of the system.

23. The loading of 765 lb/day of ammonia nitrogen was given for the Colorado River from Grand Junction to the Utah state line. It is not clear where the 3 mg/l design limitation for ammonia nitrogen is from. The engineer should coordinate the report with the areawide 208 plan and get a wasteload allocation for Grand Junction.

24. The report should evaluate the alternative of using, along with a new plant, the present plant upgraded to meet secondary treatment, but with the flow limited to a level where the ammonia nitrogen stream standards will not be violated. The actual point of discharge should also be evaluated to determine if the ambient un-ionized ammonia might readily be achieved with discharge to the main channel of the Colorado River.

25. The report did not justify the need for secondary treatment for this specific land application project. The report stated on page VIII-7 that secondary treatment generally was necessary due to a number of qualifications. The EPA Technology Transfer process design manual for Land Treatment of Municipal Wastewater gives guidance on the needs for pretreatment of sewage for land application for each of the qualifications given in the report:

a. Mountain distribution system including sprinkler nozzles -- The removal of coarse and settleable solids as well as grit, oil and grease is necessary. This may be achieved with primary treatment.

b. Prevent nuisance conditions during effluent storage -- If there is a problem with primary treated sewage in storage ponds, aerators run during summer months may be sufficient to abate it. A quantitative study would be necessary in order to justify secondary treatment to prevent nuisance conditions.

c. Maintain high infiltration rates into the soil -- High infiltration rates are necessary for infiltration-percolation systems which are not proposed in the report. For slow rate systems using crop irrigation, generally hydraulic and nitrogen loadings govern the system. From the standpoint of process performance and soil matrix impacts, pre-application treatment for the reduction of organics and suspended solids is not necessary. Industrial wastewaters with high organic strength have been applied to land successfully, and data are available to indicate that no significant differences in overall performance was obtained when both primary and secondary effluent were applied under similar conditions.

d. Permit irrigation of crops for human consumption -- The report did not specify the fact that crops would be grown for human consumption. The alternative of growing forage crops should be studied.

*Duane Jensen*

MINUTES

VALLEY WIDE SEWER COMMITTEE MEETING

January 24, 1978

7:30 P.M.

County Commissioners Meeting Room

Meeting called to order by Howard Roland.

Committee members present were Howard Roland, Jim Patterson, Ted Ford, William O'Dwyer, John Arcieri, Bob Strain, Ernest Potter, Jim Wysocki, and Suzie Young. Also present were Jack Sparks, Gerald Ashby, John Tasker, Duane Jensen, Jim Vancil, Jim Hill and Jack Pepper of Boettcher and Co., and Jim Franklin of HDR.

The minutes of the last meeting, September 15, 1977, were approved as mailed out.

Some names were suggested to fill the vacancy due to the death of Bob Jennings. Howard Roland will contact them and take some names to the meeting of the County Commissioners so that a new member can be appointed.

Duane Jensen presented a report on events which had occurred since the last Valley Wide Sewer Meeting on September 15, 1977.

Jim Patterson, Duane Jensen, H.D.R. went to Denver and met with the Water Quality Control Division on September 21 to prepare the way for approval at the meeting which was supposed to be on October 4, 1977. State staff said at that meeting they would be sending HDR a letter with specific questions which must be addressed. This letter was dated and sent on October 4. At the September 21 meeting we were informed that we would not be able to attend the October 4 meeting because we had not been placed on the agenda. There were questions coming from staff which would have to be addressed before coming to Commission. These questions were extensive and required detailed investigations, and it was not possible to have them prepared for the November 1 meeting.

A supplement to the pre-design report, which was submitted to the Commission at their executive meeting in September, was prepared by HDR with the help of Culp, Wesner, Culp, dated November 18, 1977. When the report was finished, we met with HDR and the staff of Water Quality Control Commission on November 23, 1977, and presented the report to them to answer their questions so that we could meet with the full Commission on December 6.

On December 1 Mayor Kozisek wrote a letter to the Commission telling them exactly what was desired at the December 6 meeting, which was the approval of the alternate which had been determined to be the most feasible by our consulting engineers.

On December 6, 1977, Mayor Kozisek, Howard Roland, and Jim Patterson attended the meeting along with HDR and Culp, Wesner, Culp. After a long discussion and consideration following a presentation to the Commission, it was voted to table any action until more data could be provided.

At the same time of that meeting, (Dec. 6, 1977), Duane Jensen, Jim Wysocki, Ted Ford, John Ballaugh, and Jim Spellman made a presentation of this project and other projects before the Joint Budget Committee of the State Legislature.

As a result of the December 6 meeting, the Water Quality Control Commission sent a letter, dated December 9, asking for the comments required by the Commission in the December 6 meeting. The report was put out by HDR and Culp, Wesner, Culp, dated December 21, 1977.

On December 21, 1977, Jim Patterson and Duane Jensen went back to Denver and met with the Executive Committee of the Water Quality Control Commission along with representatives of our consulting engineers. As a result of that meeting the report of December 21, 1977, was revised slightly with the revision date shown on report being December 28, 1977.

On January 3, 1978, Jim Patterson and Duane Jensen went back to Denver again to meet with the full Commission. Representatives of our consulting engineers were there. After about an hour of debate and a lunch break (where they had time to make a decision), the Water Quality Control Commission unanimously passed a resolution with an O.K. for the City of Grand Junction and Mesa County to proceed with the design of the treatment plant. They did say that if we changed our minds we could return to them for another decision. A letter will be forthcoming from the Commission stating their concerns in making their motion. To date we haven't received that letter.

We have approval of the Water Quality Control Commission in the State; the next move is to meet with the representatives of the EPA in Denver. We plan to do that within the next week to week and half. We will be submitting our formal grant amendments and formal application for go ahead on the design to EPA through the State Health Department within the next week to week and half. It appears that with one more O.K. - being EPA which we expect to receive in the next two weeks - we will be on the road to actually getting something designed regarding the new plant.

Mr. Jack Pepper of Boettcher and Co. made a presentation of some of the different forms of financing which could be used to finance this project.

1. Formation of a metropolitan sewage disposal district. This is not difficult to do and can be formed by a resolution of the entities that wish to be included. Metro Districts have power to issue debts. Revenue would be fees from the contracts for which they are treating the sewage from other districts.
2. General obligation bond by City of Grand Junction. This has to have electoral approval. Counties do not have the power to issue general obligation bonds for the construction or operation of sewage facility.
3. City of Grand Junction could issue Revenue Bonds. This type of bond secured solely from the revenue of the sewer system. Revenues would be from rate charges, tap fees, or contracts which City would enter into. Counties would have the same authority.

4. Another form (not recommended at this time) is the formation of a non-profit corporation which would be established by the City and the County. Bonds would be issued to construct the facility, and the facility leased back type of operation where revenue would pay for that lease and any debts incurred. This is a very complex type of operation.
5. Cities have the power of a general improvement district within the City. This is not a feasible form at this time as the City of Grand Junction does have a sewer system that is in place and is in operation.

Before going into any particular form of financing, it will be necessary to decide who is going to own and operate the treatment facility and who will handle actual operation, billing, and maintenance of these facilities.

Ted Ford asked if there would be a difference in the percent of interest on bonds. Mr. Pepper said no, as there was one basic source of revenue.

In regard to time frame, Mr. Pepper said a metro district could be formed quite rapidly - probably looking at 120 to 180 days. Revenue bonds on the part of the County or City would take less time.

Jack Sparks said future funding has to come from a designated management agency. The management agency must have the capacity to carry out applications according to the Water Quality Management Plan which is primarily 208. The County could be the management agency and delegate various authority to various agencies.

Jim Patterson asked that if they were talking about revenue bonds issued by the City and/or County, by the time that was done and we had contractual agreements for operation and maintenance of the system and agreements with other districts, weren't we pretty well along the same lines of a metro district. Metro district meets all needs, allows for other districts to get in; is way of bringing together all municipal entities, has central control; doesn't have to be all continuous areas.

Mr. Ashby said that we would look at metro district again now that counties can participate. No election required-done by resolution. City of Grand Junction and other districts can petition to be in district. Board is governed by population with representation by all different entities. A general ad valorem tax could be levied for a five year period not to exceed an aggregate total of 3/4 of one mill.

The Board shall consist of one member from each municipality included within the district for each 25,000 population or fraction thereof plus one member for each additional 25,000 of population or fraction thereof in any such municipality, except that no municipality shall be entitled to more than one-half of the total membership of representation on the Board of Directors, further excepted that any municipality that has 50% or more of the total population shall have one-half of the total membership for representation on the board. Members to direct the municipality are appointed by the executive of each said municipality with the approval of the governing body.

It was suggested that members that were present go back to the people they represent and recap this meeting. All representatives should talk to their respective boards and determine what interest they have towards a metropolitan district or any of the others that have been suggested. Mr. Ashby will have analysis of law and get information out to every member of the Valley Wide Sewer. Another meeting will be held soon and all members need to be present and participate.

A letter was read from Ken Henry concerning the desire of C E W Development to form a sewer district in the vicinity of the Tiara Rado area for the express purpose of connecting to the West Side sewer plant for sewer treatment . Mr Henry was not present.

Jack Sparks passed out excerpts from the Clean Water Act signed by the President the first of January.

Ted Ford suggested holding a general information meeting and getting all the different boards together if it was felt to be necessary.

Meeting adjourned