

MANZANITA SAFETY REST AREA
SEWAGE DISPOSAL FACILITY
CONTRACT 7883

SUMMARY REPORT

HISTORY

The existing sewage disposal facility at the Manzanita Safety Rest Area was authorized as a Category 2 Experimental Project by FHWA on August 9, 1972. The purpose of this experimental project was to determine, by actual use, the feasibility of utilizing a self-contained chemical-physical sewage disposal system in remote locations such as safety rest areas and state parks where subsurface disposal is environmentally unacceptable.

Under an agreement dated November 30, 1972, the State employed Wasteco, Inc., and Chem-Pure West, Inc., (Contractor) to provide a self-contained chemical-physical unit at Manzanita Safety Rest Area. The agreement was supplemented in 1974 and 1977 to implement needed design changes in an attempt to provide a functionally satisfactory facility. The facility was initially completed and put into operation on September 11, 1974.

The agreement between the State and Contractor specified that preliminary acceptance of the plant would be made by the State when certain functional requirements were achieved. Final acceptance would be made a year later provided those functional requirements were met throughout the one year preliminary acceptance period. The requirements included compliance with the Department of Environmental Quality permit which specified that effluent from the facility have no more than 5 mg/l of both the biochemical oxygen demand and the suspended solids.

Although the Contractor made physical changes in the facility and tests of the capability of the plant for about twenty-five months after initial completion of construction, the plant remained in non-compliance with the DEQ permit and preliminary acceptance was not provided by the State. During this period the State cooperated in the attempts to bring the facility into compliance by allowing the Contractor ample time to make the changes and tests and by funding the changes.

In March 1976 the U. S. Environmental Protection Agency released a study completed for them by Montgomery Engineering Co. relative to the functioning of the Manzanita sewage disposal facility. The study pointed out many problem areas and suggested solutions. Most of the solutions, except for the employment of more technically competent plant operators, were thereafter effected by the Contractor.

Based on subsequent tests made in July and August of 1976, it appeared that the facility was not capable of producing an effluent with the 5 mg/l limits specified, but could produce effluent with 15 mg/l limits. On February 9, 1977, the DEQ approved a request made by the State to change to these less exacting 15 mg/l limits. After the Contractor made additional changes, the facility did comply with the revised effluent limits and the State gave the facility preliminary approval on January 1, 1978.

After receiving preliminary acceptance, the quality of the effluent from the plant gradually deteriorated and became non-compliant with the revised DEQ permit. On September 12, 1978 the DEQ notified the State (as they had several times during the period 1974-1977) that the facility was in non-compliance. They requested that corrective measures be taken to bring the

facility into compliance. The DEQ cited insufficient and inadequately trained operating personnel as one of the reasons for non-compliance. The plant had been operated by state personnel from the time of its initial completion in 1974. This led to speculation that operation by state personnel contributed to the non-compliant effluent being produced by the facility. A review of the matter indicated that this was indeed the case.

The State notified the Contractor of the non-compliance notice issued by the DEQ and requested information regarding the steps the Contractor intended to take to bring the facility into compliance. As suggested by the DEQ, the Contractor hired an engineering consultant, Boatwright Engineering, Inc., to make tests and studies necessary to determine the future course of action. At this time, the State, because of its complicity in producing non-compliant effluent, interrupted the preliminary acceptance period in order to allow the Contractor time to have the study made. The Consultant subsequently presented a report outlining the revisions necessary to allow the production of complying effluent.

The DEQ has reviewed the Consultant's report and concurs that the revisions described would bring the facility into compliance with the DEQ permit. The Contractor estimates his cost of making the revisions to be approximately \$40,000 (engineering and construction costs to be borne by the Contractor).

UNSUCCESSFUL EXPERIMENT

Even if the necessary revisions are made, this experimental project would be considered a failure because of the high costs and questionable

reliability associated with its operation. To date the project has proven to be a failure for three reasons—1. Excessive initial cost. 2. Excessive operating costs. 3. Failure to produce effluent of required quality.

The initial agreement specified a total cost of \$140,380.00 for the treatment facility. (The building which houses the facility is not included here since it was built by another Contractor under a separate contract.) Design revisions for the facility resulted in a supplemental agreement, dated June 5, 1974. Payments to the Contractor under these two agreements have totaled \$210,244.00. An additional supplemental agreement dated December 13, 1977 indicates (in Exhibit B) an additional expenditure of \$8,958.44 by the State for changed items of work. These three agreements (not including the building contract) total \$218,202.00, or 56% more than the \$140,380.00 originally anticipated. As indicated by the DEQ, retention of the facility would require an expansion of the waste water sprinkling area to eliminate current surface run-off problems. This would probably be a holding-evaporation lagoon requiring the expenditure of approximately \$42,000.00 by the State. The Boatwright report indicates the present irrigation system does not pose a groundwater contamination threat because of the depth of the aquifer. However, it does not adequately address the surface run-off problem.

The annual operating costs have been much greater than anticipated because of the designed-in operational features of the plant and required operating personnel. This operating cost includes personnel, utilities, operating maintenance and sludge disposal. The DEQ, the Montgomery Study, and the Boatwright Report indicated the need for more and better-trained operating

personnel. It is estimated that this additional manpower would increase the operating cost to about \$3,175.00 per month (1978 dollars).

The facility was originally designed to incinerate solids. Experience has shown that the need for someone in constant attendance during incineration and the high cost of fuel make this an uneconomical operation. Currently the less costly method of hauling solids to a commercial disposal site is being used. To reinstate the incinerator, as originally intended, would also cause an increase in the current operating cost. In addition, retention of the facility would cause the State to incur the costs of normal long-term plant renovation which have now become necessary. This renovation is estimated to cost approximately \$20,000.00.

The facility has only occasionally produced the quality of effluent specified. The letters of non-compliance issued by the DEQ attest to this fact. At times the non-compliant effluent was at least partly caused by attempts to recycle a large percentage of the effluent. This produced a salt build-up and degraded the effluent. The current state-of-the-art indicates that no more than 30 percent of a plant's effluent can be recycled with success. It appears that the facility physically cannot perform in this area as originally intended.

Because of the high operating costs and poor effluent quality, this experimental project cannot be considered a success. Based on the many revisions made to date and the short-lived positive results therefrom, it is questionable as to how long the Contractor's presently proposed revision would continue to produce a satisfactory effluent.

If the proposed revisions are made, the result would be a facility with excessive operating costs producing satisfactory effluent for a questionable period of time.

ALTERNATE FACILITY

In order to avoid this situation, it is proposed that the existing facility be abandoned and an alternate facility be installed. There are two viable alternates—1. Pump treated effluent to the sewage lagoon facility operated by North Valley High School. 2. Pump treated effluent to the city of Grants Pass sewage disposal facility. Our fiscal analyses indicate that the Grants Pass alternate is the best from an economic standpoint. It is also the most permanent solution. The high school alternate will necessitate an additional revision in about ten years when the high school, (including our facility if it is connected to the high school) will be required to connect into a proposed local sewer district facility. The Grants Pass alternate is the most maintenance-free solution. It is a proven system which is in use in other areas, it does not involve a small sewage disposal facility (like the high school lagoon) which could be impacted by our discharge, and it is recommended by the DEQ.

The cost to construct the Grants Pass alternate is estimated at \$335,700.00. This cost would be reduced by a payment of approximately \$40,000.00 to be made by the present contractor in lieu of revising the existing facility. This alternate would eliminate the need of expenditures for sprinkling area revisions (approximately \$42,000.00) and current long-term plant renovation (approximately \$20,000.00).

The difference in operating costs between the existing facility and the Grants Pass alternate would pay for construction of the Grants Pass alternate in approximately 10 years. When the payment from the Contractor is also taken into consideration, the amortization period is reduced to 8 years.

Because the State's method of operating the plant contributed to the poor quality of the effluent produced, it is proposed that the existing facility be abandoned without additional penalty to the Contractor. The existing building (built under another contract) will be used for storage purposes at the Safety Rest Area and for housing the pumping facility required for the new sewage disposal system. The existing 25,000-gallon holding tank will be converted into a septic tank for the new facility. The remainder of the old facility has doubtful salvage value, however, this matter can be explored at a later date.

Attached is documentation covering the above items.