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Permit

Los Alamos National Laboratory

Los Alamos New Mexico 87545

memorandum

TO: A. J. Tidman, ADO, MS A120

DATE: December 6, 1991

FROM: *John Alexander, Jr.*
John Alexander, Jr. ENG-DO

MAIL STOP TELEPHONE: M719/7-6131

PROJECT: ENG-DO-92-084

SUBJECT: OPERATION AND MAINTENANCE DIAGNOSTIC EVALUATION INSPECTION
CONDUCTED BY NMED, AUGUST 29-30, 1991

We have completed our analysis of the points raised in the August 29-30 State of New Mexico Environmental Department (NMED) Inspection Report which was transmitted to the Laboratory on November 6, 1991 and the subsequent U.S. Environmental Protection Agency (EPA) Compliance Evaluation Inspection (CEI) of November 19-20, 1991.

ENG-8, EM-8, and JCI Utilities have been conscientiously attempting to correct all of the problems noted at the various sanitary sewage treatment plants and we will continue to do so. These facilities are 30 to 40 years of age and are limited in their ability to treat the current waste streams at the Laboratory. In order to correct this situation, we have undertaken several operational programs including updating O&M Manuals, performing waste stream characterization and installing interim corrections to maximize the operation of the facilities. The Laboratory has, also, successfully requested funding for a new system. This new system is being constructed under the Sanitary Wastewater Consolidation Project which is scheduled to be completed by October 1992.

In addition, we have reduced the frequency of violations at the sanitary sewage treatment plants and we are treating the influent more efficiently than was the case in 1990. This is evidenced by the attached charts tracking the Total Suspended Solids (TSS) at the various facilities. TSS is one of our permit performance measurements and is a good indicator of the effectiveness of the treatment process. While we are still having some violations, we have been successful in minimizing the number of violations (Attachment 2) and maximizing the effectiveness of our existing facilities.

The following is a point by point response to the issues raised in the audit as outlined in your memo of November 27, 1991.

1) Several treatment units at the Sewage Treatment Plants were not functioning properly.



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a. The inspectors noted in their report that the trickling filters at the TA-3 and TA-16 plants had minimal biological growth on the media which would reduce their effectiveness. This condition is caused by the fluctuating and low organic loading on these facilities which is a direct result of the cyclic operation of the Laboratory during any 24 hour period. The Laboratory grows from a few hundred employees at 0600 hours to over 10,000 personnel by 0800 hours and shrinks back to a few hundred by early evening. This type of fluctuation is not conducive to a lush biological growth on trickling filters. However, we have compensated for this problem by recirculating the output of our secondary clarifiers to the inlet of the plant. This results in the same influent being treated through the primary train at least twice and the plant remaining within the permitted limits. In order to ensure that we are operating the facility at the maximum efficiency with this operation, we have directed JCI-JENV to perform operational performance testing at the inflow, the output from the primary clarifier (Imhoff Tank), the output from the secondary clarifier, and at the final exit point from the plant. It should also be noted that both of these plants will be replaced by the Sanitary Wastewater Consolidation Project which is scheduled to be completed by October 1992.

b. It was noted that the TA-21 activated sludge facility was relying very heavily upon the sand filters to maintain effluent quality. In addition it was noted that there were excessive amounts of dead sludge in the clarifiers and the recirculation pump pit. This facility does rely heavily upon the sand filters and was regularly out of compliance prior to their installation in 1990. The maintenance interval on the sand filters will be decreased and we will continue to ensure that they are in good operating order. The sludge buildup in the clarifiers and the effluent pump pit is being monitored and removed as required to maximize the efficiency of the facility.

c. The inspectors were concerned that the Laboratory was not conducting process control testing on its sewage treatment lagoons. We will begin operational testing of these facilities by January 18, 1992 to demonstrate that they are being operated at their maximum efficiency given our operating constraints. However, it should be noted that there are no operational changes which the Laboratory can implement to improve the performance of the non-aerated lagoons. Sludge wasting (removal) from these facilities has been precluded by the fact that they are considered SWMU's and thus subject to RCRA considerations.

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It should also be noted that these plants will be replaced by the Sanitary Wastewater Consolidation Project which is scheduled to be completed by October 1992.

2) Excessive amounts of foam and floating solids were being discharged from NPDES Outfall 01S at the TA-3 Sanitary Sewage Treatment Plant (STP). This situation was considered a direct violation of NPDES Permit No. NMO028355.

a. The area that the TA-3 STP serves is a diverse and fairly heavily occupied area of the Laboratory. The service area includes the Royal Crest Trailer Park, Omega West Reactor, the CMR Building, and the main administrative area of the Laboratory. The Laboratory through EM-8 is conducting a comprehensive waste stream characterization which will identify the sources of pollutants including foaming agents which can not be treated in this STP. These pollutants will then be eliminated from the waste stream. However, to date we have not been able to identify any distinct sources of foaming agents. Therefore the Laboratory has requested a waiver on this portion of it's permit through the Federal Facilities Compliance Agreement.

3) Insufficient operation and maintenance records were being kept for all treatment facilities (flow calibration records, operation and maintenance files for each item of major equipment, spare parts inventory, equipment specifications, process control records).

a. We have been continuously improving our O&M procedures and record keeping process since this concern was identified in May 1990. We have completed the update of our O&M Manuals for the sanitary sewage treatment plants and were in the process of improving the O&M records for these facilities when we were inspected by the NMED in August of 1991. Since August we have issued a preventive maintenance manual for each facility and we are currently incorporating this information into a PC based computerized scheduling system. This system will be fully operational by February 1, 1992.

4) Undisclosed and/or unidentified waste streams are being introduced into sanitary facilities which are permitted for domestic sewage (i.e. TA-53 sewage

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lagoons, TA-16 STP).

a. The Laboratory through EM-8 is conducting a comprehensive waste stream characterization which will identify the sources of pollutants which can not be treated in the sanitary sewage treatment plants. These pollutants will then be eliminated from the waste stream. In addition, the Laboratory has established administrative controls regarding allowable discharges into the sanitary sewer system including AR 9.6 (attached). We have also begun to meet with our support services contractor (JCI) and user groups whenever a questionable waste stream is identified at a treatment facility. These managers are reminded at these meetings of Laboratory policy and the potential liability if the discharges are not corrected.

b. The Laboratory will modify the descriptions of influent into the TA-16 STP to include storm water runoff thus recognizing the actual conditions at the site.

5) Problems noted during the May 23-24, 1990, Compliance Evaluation Inspection were found to be still in existence.

a. The Laboratory has been conscientiously attempting to correct all of the problems noted at the various sanitary sewage treatment plants and we will continue to do so. These facilities are 30 to 40 years of age and are limited in their ability to treat the current waste streams at the Laboratory. In order to correct this situation, the Laboratory has undertaken several operational programs including updating its O&M Manuals, performing waste stream characterization and installing interim corrections to maximize the operation of the facilities. We have also successfully requested funding for a new system. This new system is being constructed under the Sanitary Wastewater Consolidation Project which is scheduled to be completed by October 1992.

6) No maintenance management system or comprehensive preventative maintenance system is in place for any of the treatment plants evaluated by NMED.

a. We have been continuously improving our O&M procedures and record keeping process since this concern was identified in May 1990. We have

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completed the update of our O&M Manuals for the sanitary sewage treatment plants and were in the process of improving the O&M records for these facilities when we were inspected by the NMED in August of 1991. Since August we have issued a preventive maintenance manual for each facility and we are currently incorporating this information into a PC based computerized scheduling system. This system will be fully operational by February 1, 1992. Our current progress was reviewed by the EPA inspectors in their November 19-20, 1991 CEI and only minor deficiencies were noted in our plan. After these discussions, we feel we are on the right track and should have an acceptable program in place by February 1992.

7) Current operating practice of rotating operators at the sanitary treatment plants may not ensure that adequate operations and maintenance activities are being performed at each facility.

a. The current practice was established in an effort to maintain equity among the Operating Engineers working in the water and wastewater section of JCI Utilities. Several of the positions within this section require that the Operating Engineers work evening and graveyard shifts. This is not a requirement for the operators of the sanitary sewage treatment plants and thus these positions are considered favorable. The rotation procedure is contributing to a lack of consistent operations at the facilities and has been the cause of considerable concern to the NMED and EPA auditors. JCI Utilities has committed to eliminating the rotation process and providing a dedicated crew for sanitary sewage treatment plant operations by February 1, 1992.

8) Staffing of "swing" and "graveyard" shifts at the treatment plants may not be adequate to handle emergency situations at the facilities.

a. This situation will be corrected with the implementation of the dedicated crew for sanitary sewage treatment plant operations. The dedicated crew will provide us with State of New Mexico certified operators on call during swing and graveyard shifts. This type of response should be adequate to meet any emergencies which should arise.

9) Operation and maintenance of sanitary treatment facilities do not meet the provisions of the NPDES Permit.

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a. The Laboratory has been conscientiously attempting to correct all of the problems noted at the various sanitary sewage treatment plants and we will continue to do so. These facilities are 30 to 40 years of age and are limited in their ability to treat the current waste streams at the Laboratory. In order to correct this situation, the Laboratory has undertaken several operational programs including updating its O&M Manuals, performing waste stream characterization and installing interim corrections to maximize the operation of the facilities. We have also successfully requested funding for a new system. This new system is being constructed under the Sanitary Wastewater Consolidation Project which is scheduled to be completed by October 1992.

b. The Laboratory has reduced the frequency of violations at the sanitary sewage treatment plants and is treating the influent more efficiently than was the case in 1990. This is evidenced by the attached charts tracking the Total Suspended Solids (TSS) at the various facilities. TSS is one of our permit performance measurements and is a good indicator of the effectiveness of the treatment process. While we are still having some violations, we have been successful in minimizing the number of violations (Attachment 2) and maximizing the effectiveness of our existing facilities.

10) Communication among JCI Utilities, JCI Environmental, ENG-8, and EM-8 concerning NPDES regulatory requirements is inadequate.

Currently the subject facilities are being operated by JCI Utilities through their UMEC group. Operations personnel consist of 2 crews of 2 operators working 5 days per week. These operators are rotated through these positions as well as the Utility Control Center and Water operations. JCI Utilities has committed to eliminating the rotation process and providing a dedicated crew for plant operations.

The oversight function for subject facilities is being carried out through a matrix management approach with responsibilities being split between JCI Environmental (JENV), EM-8, and ENG-8.

JENV has 2 to 3 FTE's working in STP and is responsible for the following activities:

- 1) Performing operational and compliance testing.

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- 2) Submitting test reports to EM-8.
- 3) Interfacing with UMEC on operational problems.
- 4) Monthly surveillance reports.

EM-8 has 4 FTE's in it's NPDES Permit program of which 0.25 are involved with STP operations and are responsible for the following activities:

- 1) Receive all JENV compliance reports for submission to NMED.
- 2) Organize and act as focal point for State and EPA Audits.
- 3) Participate in Audits.
- 4) Provide oversight for JENV monitoring of STP.
- 5) Provide waste stream characterization at all LANL facilities.

ENG-8 has 0.25 FTE's assigned to STP and is responsible for the following activities:

- 1) Provide oversight of JCI-UMDO operations including the SPT.
 - a. Review non compliance reports. (Currently only violations)
 - b. Participate in audits.
 - c. Visit the facility monthly.
 - d. Meet weekly with UMEC to discuss problems and status of action items

The major weaknesses in the current oversight function are:

1) Insufficient technical oversight is being provided by ENG-8 of STP operations. The same problem was noted at the Steam/Power Plants during the investigation of the May 19-21, 1990 accidental release of sulfuric acid and represents a basic change in the manner in which we oversee JCI Utilities operations. ENG-8 should be inspecting the facilities on a weekly and possibly on a daily basis as the need arises. We should also be receiving weekly operational reports from JENV showing the daily influent and effluent quality for each of the facilities. ENG-8 should also, be intimately involved in the preventive maintenance program.

2) Procedures need to be developed which provide clear delineation of the paths of communication and the responsibilities of each participant in the oversight function.

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3) We need to streamline our oversight functions. We currently have three different groups providing oversight for a function which consists of 4 actual workers. We are spending more effort trying to decide who is going to perform which oversight functions than the actual work effort.

Solutions:

- 1) Hire a new sanitary sewage treatment plant engineer within ENG-8 to provide direct oversight of sanitary sewage treatment plant operations. In the interim, employ a graduate research assistant (GRA).
- 2) Prepare procedures delineating the responsibilities of all of the participants in the sanitary sewage treatment plant operations and require a monthly meeting among the participants to ensure adequate communications.
- 3) Initiate a management study of the most effective manner of administering these facilities as recommended in Mr. Haarman's memo of October 28, 1991 to Mr. Gunderson.

I hope this meets with your requirements. If you have any questions please call me at 667-6131.

CRR/ni

Attachments: (8)

Cy w/ att.

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CRM-4, MS A150
ENG-DO File
Action Item #121
ENG-8 File (JT92.033)