



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

November 16, 2001

Mr. Roger Olson
FKC Co., Ltd.
2708 West 18th Street
Port Angeles, WA 98363

SUBJ: Class A Alternative 1 Time & Temperature
40 CFR Part 503 Regulatory Requirements

Dear Mr. Olson:

It was a pleasure to see you and Trent Bohman at the WEFTEC Conference and to speak to you about the Tallahassee screw press project. I enjoyed my visit to the T.P. Smith Water Reclamation Plant to see the FKC screw press in operation. It was unfortunate that the lime system was off line due to problems associated with the oversize rocks in the lime and the undersized lime feeder. Mr. Keith Turner was very helpful and informative in explaining the operation of the screw press and lime feed system to both myself and Maurice Barker with the Florida Department of Environmental Protection (FDEP). I was impressed with the transmittal, recording, and management of required data from the screw press to the T.P. Smith belt press operations computer system. This type of data collection accurately demonstrates and documents the in-process monitoring that Dick Hetherington and I had indicated were of major importance when demonstrating compliance with time and temperature requirements.

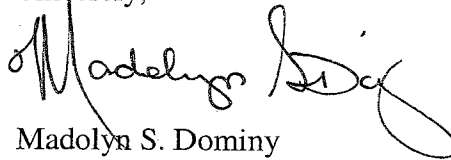
I received your package dated October 5, 2001 which includes data from seven full-scale "Class A" test runs that were conducted during the week of September 10 - 14, 2001. T.P. Smith personnel also explained some of the data to me during my site visit. The screw press has eight thermocouples located along the length of the screw press. Temperature readings were recorded at the eight thermocouples every 30 seconds during the test runs. The data provided in the report illustrates the calculated retention times, minimum temperatures, maximum temperatures, and average temperatures for various screw press speeds. In order to achieve compliance with Class A Alternative 1 requirements, the minimum temperature must be greater than the required temperature for a calculated retention time. The data indicates that the time and temperature requirements were met with the exception of test run #6 (TR-6) when a dye injection study was conducted and the screw press covers were repeatedly removed which cooled the press resulting in required minimum temperatures not being met. I feel confident that the data included in the report and the field observations that I made verify that the FKC screw press can indeed achieve the Alternative 1 time-temperature requirements. Maurice Barker expressed a desire to have the thermocouples relocated in various places around the screw press to provide additional confidence that the heating and temperatures remain consistent and symmetrical about the centerline of the press. In your letter, you indicate that FKC plans to do this.

In addition to meeting the time and temperature requirements, FKC should continue to evaluate the lime/pH equipment to ensure its long-term capability and reliability. We discussed the Class A vector attraction requirements during our brief meeting at WEFTEC, and you were correct in your interpretation that the pH adjustment for vector attraction (Option 6) may be met before the pathogen reduction requirement. FKC should sample and monitor the lime treated sewage sludge according to the requirements outlined in Chapter 10 of the "Control of Pathogens and Vector Attraction in Sewage Sludge" document.

EPA recommends that additional testing be conducted to demonstrate full compliance with the Part 503 regulations, especially the vector attraction (pH) monitoring. However, based upon the data presented thus far, EPA believe that the FKC screw press, as currently operating in Tallahassee, can meet the Class A Alternative 1 time-temperatures requirements. After additional test runs are completed, FKC can increase the temperature recording time to greater than the current 30 second intervals. Since the retention time of the material passing through the heated screw press will be at least 40 minutes dependent upon screw press speed, it is not necessary to monitor the temperature every 30 seconds. It is critical, however, that clear and accurate data be recorded to fully demonstrate that time and temperature requirements are met at all times.

Please continue to keep me informed of the Tallahassee operation and provide me with any additional test data that is collected. If I may be of further assistance, feel free to call me at (404)562-9305.

Sincerely,



Madolyn S. Dominy
Region 4 Biosolids Coordinator



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61 FORSYTH STREET
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March 15, 2001

Mr. Trent Bohman
FKC Co., Ltd.
2708 West 18th Street
Port Angeles, WA 98363

SUBJ: Class A Alternative 1 Time & Temperature
40 CFR Part 503 Regulatory Requirements

Dear Mr. Bohman:

Thank you for your submittal to Dick Hetherington dated February 2, 2001, transmitting the test protocol for the FKC Screw Press. I enjoyed visiting with you and Roger Olson at the Water Environment Federation (WEF) biosolids specialty conference in San Diego and getting a chance to speak with you all and see the scaled model of the screw press.

FKC is proposing to use Class A Alternative 1: Thermally Treated Biosolids (503.32(a)(3)), to meet pathogen reduction requirements. Alternative 1 requires that biosolids must be subjected to one of four time-temperature regimes. In order to document compliance with this requirement, direct monitoring of the sludge temperatures throughout the treatment process and demonstration of the associated detention times is necessary. It is also important to note that it is mandatory for all sewage sludge particles to meet the time-temperature requirements. Therefore, maintaining the minimum required temperature throughout the sludge layer in the unit is critical.

The objective of the information included in your report, along with the full-scale demonstration at the City of Tallahassee T.P. Smith Wastewater Treatment Plant, is to develop data which indicates that Class A pathogen reduction as outlined in Alternative 1 is being met. This is to be done by maintaining the biosolids in a specified length/segment of the steam heated screw press at a specified temperature for a specified time (≥ 70 degrees for at least 30 minutes). Testing for fecal coliform and/or *Salmonella* sp. will also be conducted to verify that pathogens are below regulatory limits for Class A biosolids.

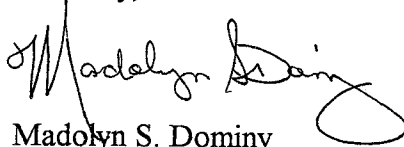
In your report, you provided information and data for a test screw press in Sequim, Washington. The information included temperature measurements from flight to flight and detention time verification using dye injection. This is the type of information that EPA considers for compliance with 40 CFR Part 503 Class A Alternative 1 requirements. The report provided adequate documentation of the test results. It is preferable for all thermocouple temperature probes to be fixed and temperature recordings to be done electronically and recorded onto a strip chart. This will prevent the potential for human error in measuring and recording temperatures. Also, the screw press speed must be set such that the detention time in the "hottest" part of the screw press is at least 30 minutes.

In addition to pathogen reduction, the Part 503 regulations also require that vector attraction reduction requirements be met. Thermally treated sewage sludge must be treated by an additional vector attraction reduction process since thermal treatment does not necessarily break down the volatile solids in sewage sludge. FKC proposes to treat the sewage sludge using pH adjustment. The information presented in the report, analytical results from the onsite testing at Sequim, WA, and the design schematic indicate that the system should provide adequate alkali stabilization of the sewage sludge. The full-scale operation in Tallahassee will also provide more definitive data.

As the Region 4 biosolids permitting authority, I am always open to new or innovative technologies which may not meet the traditional technologies outlined in the regulations and the "Control of Pathogens and Vector Attraction in Sewage Sludge" guidance document. I am eager to see the full-scale operation in Tallahassee and look forward to meeting with you to tour the facility. As explained during our telephone conversations and discussions in San Diego, neither myself nor Dr. Jim Smith, Chair of EPA's Pathogen Equivalency Committee, feel that it is necessary for FKC to seek approval for an equivalent Process to Further Reduce Pathogens (PFRP) process at this time. From the data provided in the test protocol report, it appears that the FKC heated screw press can achieve the required time and temperature regime as outlined in Class A Alternative 1, as well as vector attraction reduction option 6. As the permitting authority, EPA does not provide certifications or approvals of compliance with biosolids requirements of specific technologies, processes, or equipment. It is the responsibility of the generator and/or preparer of the sewage sludge to ensure that all pollutant concentration, pathogen reduction, and vector attraction reduction requirements are being met prior to distribution or disposal of biosolids. If a specific technology can provide operational data to demonstrate that compliance with one of the alternatives outlined in the regulations and supporting documents is achieved, no certification or approval from the permitting authority is necessary.

Should you need any further information or have any questions, please do not hesitate to contact me at (404)562-9305. I look forward to discussing the Tallahassee project further once the unit is installed and operational.

Sincerely,



Madolyn S. Dominy
Region 4 Biosolids Coordinator

cc: Dick Hetherington, EPA Region 10
Dr. Jim Smith, EPA Cincinnati