



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

N00164.AR.000269
NSWC CRANE
5090.3a

January 16, 1997

REPLY TO THE ATTENTION OF:

DRP-8J

Mr. Thomas Brent
Environmental Protection Department
5090 SER 095/6228
Department of the Navy
Naval Surface Warfare Center
300 Highway 361
Crane, Indiana 47522-5000

RE: Quality Assurance Plan
Bioremediation Facility
Naval Surface Warfare Center
Crane, Indiana
IN5 170 023 498

Dear Mr. Brent:

The purpose of this letter is to transmit our technical comments on the Total Kjeldahl Nitrogen Standard Operating Procedure, for the Quality Assurance Plan for the Bioremediation Facility, dated November 1, 1996. Our specific comments are included in Attachment I.

Please have your contractor create a response to comments document along with the revisions in order to speed the final review. If you would like to have a conference call or meeting to discuss any of these issues, please call me or Allen Debus at (312) 886-6186, to arrange a time. If you have any questions regarding this matter, please contact me at (312) 886-6146.

Sincerely,

A handwritten signature in cursive script, appearing to read "Carol Witt-Smith".

Carol Witt-Smith
Corrective Action Expert
WMB, IL/IN/MI Section

cc: Jim Hunsicker, NSWC
Steve Downey, MK at NSWC
Adrienne Wilson, SOUTH DIV
Tom Linson, IDEM

ATTACHMENT I
Comments on the TKN SOP
Quality Assurance Plan for the Bioremediation Facility
Dated November 1, 1996
Naval Surface Warfare Center
Crane, Indiana

1. Table 1-5 of the QAPP identifies EPA method 351.2 as the reference TKN procedure, whereas the submitted Southwest SOP indicates that the SOP is actually based on method 351.3. Table 1-5 should evidently be modified to reflect use of EPA method 351.3.
2. Certain TKN methods fail to account for certain forms of nitrogen. Some explanation should be provided in the QAPP as to whether the explosive compounds under this facility investigation are intended to be accounted for as TKN. If TKN is insufficiently sensitive to the presence of explosives compounds, as well as other forms of organic nitrogen (plus ammonia), then the purpose of utilizing this test should be clarified. As stated on page 4-75 of Standard Methods for the Examination of Water and Wastewater, 19th ed., 1995, organic nitrogen is a term that includes such natural materials as proteins and peptides, nucleic acids and urea, and "numerous synthetic" organic materials. More specifically, TKN can fail to account for certain nitrogen forms such as nitro and azine groups. As you are aware, various species of nitrobenzenes are known to be site contaminants, and a key target parameter, RDX, is also known as hexahydro-1,2,5-trinitro - sym triazine. It is important (and this is Crane's responsibility) to fully consider the purpose of testing prior to selecting methods, and to determine whether TKN should provide the right sort of data for a specific aspect of the compost investigation.
3. Although unproposed in the QAPP, (biodegradation study), it is conceivable that when compared to suitable background sampling locations, tests for forms of nitrogen in excavated SWMU areas could pose one indicator of the possible presence of explosives compounds (e.g. biodegradation products). However, it is understood that other field tests designed for explosives parameters could address this objective more reliably, directly and readily than laboratory tests for nitrogen containing compounds. The original version of the QAPP had proposed testing for nitrate and nitrite, (presumably as a means of monitoring the compost piles in the biofacility, and apparently not for this suggested purpose). It is not clear why it has been proposed to omit these additional nitrogen tests from the current QAPP. What were/are the objectives associated with the various nitrogen tests?
4. In section IV of the SOP it is stated that high nitrate concentrations (i.e. 10 times or more than the TKN level) will pose matrix interference difficulties. Given that the nitrate concentration levels may be high in the compost matrix, it is recommended that Southwest follow the procedure described for circumventing this difficulty.
5. Section VI.F of the SOP refers to a section VI.F, which should perhaps refer to section VI.E instead.
6. The procedure used for establishing the Preparation Blank, as indicated in section VIII.B, should be more fully elaborated. Specifically, which steps will this sample be taken through to ensure that it is a true "preparation" blank? What are the acceptance criteria for the Preparation Blank?
7. Referring to section VIII.C of the TKN SOP, the MS/MSD pair is requested for this project, at a frequency of 1/20 investigational samples, or a minimum of one per sampling interval.