



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

September 3, 2010

Mr. Scott Ward
Senior Vice-President and General Manager
Analytical Bio-Chemistry Laboratories, Inc.
7200 East ABC Lane
Columbia, MO 65202

SUBJECT: ANALYTICAL BIO-CHEMISTRY LABORATORIES, INC. (ABC) AND U.S.
NUCLEAR REGULATORY COMMISSION (NRC), AUGUST 12, 2010,
MEETING REPORT

Dear Mr. Ward:

This refers to the August 12, 2010, meeting between ABC and NRC to discuss the following topics: 1) Provide ABC with an up-date on State of Missouri comments regarding ABC's Decommissioning Plan (DP) and the scheduling of a public meeting; 2) NRC requests for additional information (RAIs) regarding ABC's DP for the remediation and unrestricted release of ABC's former sanitary lagoon; 3) Additional NRC RAIs regarding a current ABC amendment request for the unrestricted release of two buried sanitary lagoons (NRC Licensing Mail Control No. 572944); 4) Obtain a current status from ABC regarding decommissioning activities being conducted in Building D; and 5) Discuss ABC's management oversight pertaining to licensee control of NRC licensed materials and decommissioning activities. A September 2 Meeting Report documenting the August 12 meeting is attached (ADAMS Accession No. ML102460126).

Topics two and three contain requests for additional information that were discussed during the August 12 meeting. Please submit in writing the requested information to the NRC, within 60 days from the date of this letter. Regarding topic one, we will contact you within the near future to schedule a date for the NRC proposed public meeting.

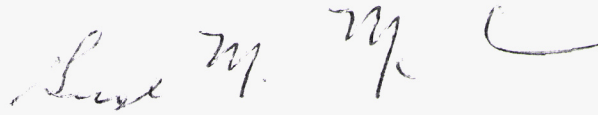
In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

S. Ward

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We will gladly discuss any questions you may have regarding this letter and its enclosure.
Please contact me at (630) 829-9856 or by E-mail at mike.mccann@nrc.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "George M. McCann", followed by a large, stylized flourish or underline.

George M. McCann, Senior Health Physicist
Materials Control, ISFSI, and
Decommissioning Branch

Docket No.: 030-05154

License No.: 24-13365-01

Enclosure:

September 2, 2010, Meeting Report (ML102460126)

cc (w/encl): J. Langston, MDHSS
A. McKinney, MDHSS
T. Judge, MDNR
J. Shinn, MDNR
B. Keck, RSO

S. Ward

-2-

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/RA/

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S. Ward

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MEETING REPORT

September 2, 2010

Licensee: Analytical Biochemistry Laboratories (ABC)
7200 ABC Lane
Columbia, Missouri

Docket Number: 030-05154
License Number: 24-13365-01

Date of Meeting: August 12, 2010

Meeting Participants: **ABC Labs.**
Scot Ward, Senior Vice-President and General Manager

Troy W. DeVault, Director of Corporate Services

Frank White, Ph.D., Director of Research, ABC Interim Radiation Safety Officer (RSO)

Bradley Keck, Ph.D., RSO candidate (by telephone)

U.S. Nuclear Regulatory Commission (NRC)
George (Mike) McCann, Senior Health Physicist, NRC, Region III, Division of Nuclear Material Safety, Materials Control, ISFSI, and Decommissioning Branch (MCIDB)

Peter J. Lee, PhD, CHP, MCIDB

Meeting Topics:

1. Up-date on State of Missouri comments regarding ABC's DP and up-coming Public Meeting.
2. Requests for additional information (RAIs) regarding ABC's decommissioning Plan (DP) for the remediation and unrestricted release of ABC's former Sanitary Lagoon.
3. RAIs regarding ABC's current amendment request for the unrestricted release of two buried sanitary lagoons (Material Licensing Branch Mail Control Number 572944).
4. Current decommissioning activities being conducted in the licensee's Building D.
5. Management oversight pertaining to licensee control of NRC licensed materials and decommissioning activities.

Discussion:

Topic 1: Up-date on State of Missouri comments regarding ABC's DP and up-coming Public Meeting.

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The NRC staff briefed the licensee regarding a meeting held before the ABC meeting on the same day, between the NRC staff and representatives of the State of Missouri Departments of Natural Resources, and Health and Senior Services. These representatives had previously

provided comments to the NRC regarding the ABC DP. The general comments from the State representatives fell into three broad categories as follows:

- A. ABC's actions to address potential chemical impacts as a result of discharges to the former sanitary lagoon, and its associated drain field. The State's Department of Natural Resources, Hazardous Waste Program, provided these comments in a letter dated July 20, 2010 (ML102040097).
- B. ABC's actions to ensure that after the sanitary lagoon is remediated and found acceptable for release by the NRC that ABC comply with its State Permit for the proper closure of the lagoon. The State's Department of Natural Resources, provided these comments to the licensee, with a copy to the NRC, and in a letter dated July 26, 2010 (ML102090500).
- C. ABC's methods and assumptions used to develop the proposed Derived Concentration Guideline Limit (DCGL), dose modeling inputs, and application of State U.S. Environmental Protection Agency (USEPA), and International Commission on Radiological Protection (ICRP) guideline values. The State provided the NRC via an E-mail in a draft document dated July 21, 2010, comments regarding the State's review of the ABC DP dose modeling used to establish DCGLs, and dose input parameters, and dose limits used for unrestricted release of the site.

Item 1.A. Discussion:

The licensee was advised that the NRC's need for more detailed and defensible information regarding potential surface and groundwater impacts due to radiological and non-radiological contaminants is still needed. This request for information was requested in both the previous DP submissions, and is still lacking. The licensee's management was advised that based on the residual contamination in the lagoon and the associated drainage field, the post remediation radiological dose assessment is adequate to demonstrate that future dose would not exceed the NRC's Part 20, Subpart E, unrestricted use criteria. However, the information does not provide sufficient information to address groundwater impacts due to past releases, which could be present in on-site groundwater, nor does the information address neither non-radiological impacts nor total risk due to these constituents.

The NRC staff informed the licensee to refer to specific sections of NRC NUREG-1757 Vol. 2, Rev. 1, "Consolidated Decommissioning Guidance, Characterization, Survey, and Determination of Radiological Criteria," for guidance specific to developing and addressing potential surface and groundwater impacts due to radiological and non-radiological impacts. The licensee management was further advised that if further questions should arise, that Mr. Matthew Meyer, NRC hydrogeologist, who had participated in an August 5, 2010, telephone conversation between Region III staff and ABC Lab's management, could be contacted for questions regarding NRC monitoring requirements.

The licensee was further advised regarding the importance to work closely with the State regulators, although it is not the intent of the NRC to enforce State requirements, the NRC clearly describes in the NUREG-1757, Vol 2, guidance that close cooperation with these

agencies is necessary. Excerpts, which are applicable to addressing groundwater monitoring and radiological and non radiological impacts, taken from the NUREG that were discussed in general terms during the meeting are outlined, in part as follows:

Section 4.2 SCOPING AND CHARACTERIZATION SURVEYS (page 4-8) “partial excerpt”

Scoping surveys provide site-specific information based on limited measurements. The following are the primary objectives of a scoping survey:

- Perform a preliminary hazard assessment,
- Provide data to address the requirements of other applicable regulations, and

Scoping surveys are conducted after the Historical Site Assessment is completed and consist of judgment measurements based on the HSA data... If the scoping survey locates residual radioactivity, the area may be considered as a Class 1 (or Class 2) area for the FSS and a characterization survey is typically performed. Sufficient information should be collected to identify situations that require immediate radiological attention. Licensees should be aware that potential requirements of other applicable regulations (e.g., non radiological constituents) might differ from NRC requirements...

Appendix F, Ground and Surface Water Characterization, Section F.2 Ground Water Characterization “partial excerpt”

Characterization of ground water contamination, including all significant radiological constituents, along with inorganic and organic constituents and related parameters, should be adequate to determine the following:

- Extent and concentration distribution of contaminants;
- Background ground water quality;
- Potential safety and environmental issues associated with remediating the surface and round water;
- Effect of the non-radiological constituents on the mobility of the radionuclides;

Characterization of the non-radiological constituents and related parameters may also be required by other regulatory Agencies that have jurisdiction over the decommissioning effort. Therefore, licensees should contact Federal, State, or local government bodies responsible for regulating water. Typical analytical parameters include gross alpha particle activity, gross beta particle activity, specific radionuclide concentrations, gamma spectrum analysis for all gamma-emitting radionuclides suspected to be present, sulfate, chloride, carbonate, alkalinity, nitrate, Total Dissolved Solids (TDS), Total Organic Carbon (TOC), Eh, pH, calcium, sodium, potassium, iron, and dissolved oxygen. Additional analytical parameters may be necessary to characterize any suspected contamination.

Appendix N ALARA Analyses “partial excerpt”

“Reasonably achievable’ is judged by considering the state of technology and the economics of improvements in relation to all the benefits from these improvements. (However, a comprehensive consideration of risks and benefits will include risks from non-radiological hazards. An action taken to reduce radiation risks should not result in a significantly larger risk from other hazards.) NRC Regulatory Guide 8.8, Revision 3 (1978).” [Quotes in original.]

Appendix O, Lessons Learned and Questions and Answers to Clarify License Termination Guidance and Plans “partial excerpt”

Lesson 9: Environmental Reviews

Environmental assessments should address non-radiological impacts of the proposed action. In accordance with the provisions of the National Environmental Policy Act (i.e., Public Law 91-190) all agencies of the Federal Government are required to assess the environmental impact of any major Federal action that may significantly affect the quality of the human environment. As part of NRC’s approval of either a DP or an LTP, NRC staff is required to determine if that approval is a Federal action. Therefore, the impacts on the human environment associated with NRC approving either a DP or an LTP must be assessed. Further, this assessment must include both radiological and non-radiological impacts. Although most licensees normally provide sufficient information for the NRC staff to assess the radiological impacts on the human environment, some licensees have not provided sufficient information related to current site-specific non-radiological impacts.

Item 1.B. Discussion

The licensee management was informed that during a NRC meeting with the State of Missouri staff, the State representatives outlined the State’s permit requirements for the backfilling, grading and seeding involving the closure of State Permitted sanitary lagoons. The State also indicated that ABC may need to apply for a “Land Disturbance Permit,” which is required if any land disturbances are projected that involve more than one acre. The State’s letter to ABC outlined these requirements, and the NRC was copied. The NRC staff informed both the State representatives, and ABC management, that it is imperative that the State requirements be complied with during and after the completion of the site decommissioning. It was agreed during both the State and ABC meetings that this topic would be discussed during an upcoming public meeting to be scheduled by the NRC. This meeting will be a regulator and licensee meeting that will be open for public observation, and will be held during September 2010.

Item 1.C. Discussion

The NRC staff discussed with the licensee in general terms, the State’s preliminary comments, which still had not been finalized at the time of the NRC and State meeting. The NRC staff provided copies to the State participants ABC’s July 21, 2010, “Response to Requests for Additional Information Regarding Decommissioning Plan (Mail Control No. 318219) dated June 18, 2010), and supplemental information dated August 5, 2010, “ABC Labs-Columbia MO Site Final Status Survey Implementation, Final Status Survey Approach Revisions.” The NRC’s requests for additional information regarding ABC’s DP can be found in ADAMS under accession number ML102010267. The licensee’s supplemental information provided to the

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NRC, and NRC staff explanations addressed most of the State questions. The State representatives committed to finalizing its letter to the NRC within the near future.

Topic 2: Requests for additional information (RAIs) regarding ABC's Decommissioning Plan (DP) for the remediation and unrestricted release of ABC's former Sanitary Lagoon.

During the meeting, NRC staff advised the licensee that the NRC is requesting additional information (RAI) to supplement the licensee's DP as follows:

- A. Construction and design specification for the lagoon, e.g., lagoon liner thickness and layout. The licensee showed the NRC staff construction plans for the lagoon, and committed to submitting the plans in response to the NRC's RAIs.
- B. Commitment to collect samples below the clay liner after it is remediated to demonstrate that there was no leakage through the liner. The licensee management indicated that the clay liner was made from the same material under the liner, except that the liner was compacted. The NRC staff indicated to the licensee that if it is believed this information is germane to the licensee's sampling approach that it needs to be discussed in the licensee's response with defensible technical and scientific bases provided.
- C. Commitment to perform groundwater sampling to demonstrate that there are no groundwater impacts above NRC unrestricted use limits due to past discharges. This needs to be provided in a proposed sampling plan. The licensee was directed to NUREG-1757, Vol 2. It was also discussed that Matthew Meyer, NRC Hydrogeologist could be contacted to discuss the plan in general terms, but he could not specifically review or consult on draft plans or proposals.
- D. Provide any information regarding water sampling performed on water discharged from the facilities to the lagoon and any water sample results for water discharged from the lagoon to the drain field (if any). The licensee management indicated that there might not be any sample information available.
- E. Provide information regarding nearby private wells (off-site), including well specification and limitations. This information should be available through local and State authorities. This information will be useful when developing a sampling plan.
- F. The NRC staff discussed calls between the NRC and Missouri DNR regarding chemical analysis regarding potential chemical contamination that might have been release via the lagoon discharges and holdup. MDNR staff indicated that they have requested detail regarding sampling approach and procedures, and that they have not received adequate responses from the ABC staff nor their contractor.

The licensee was informed as indicated above, that the NRC cannot enforce State requirements, but that the NRC still needs additional information regarding potential chemical influences on the radiological materials in the soils and groundwater and the environment. It was mentioned during the meeting that if the licensee needs to do some additional sampling for the NRC that it might be advantageous to do the sampling at the same time. However, the licensee was advised that we would approve a plan that satisfies the NRC and should the State's request for sampling

have a greater scope than the plan accepted by the NRC, that compliance with the State request would be between the licensee and the State.

Topic 3: RAIs regarding ABC's current amendment request for the unrestricted release of two buried sanitary lagoons (Material Licensing Branch Mail Control Number 572944).

The NRC staff discussed ABC's amendment request to release two potentially contaminated former sanitary lagoons for unrestricted use. The two lagoons had been used prior to the construction of the current sanitary lagoon, which is the subject of the NRC's current DP review. The licensee indicated that a lagoon had been built in 1968, and was subsequently expanded into two lagoons that were used until 1988. The staff discussed the NRC decommissioning requirements, which are described in 10 CFR Part 30.36. The staff informed the licensee that the current characterization survey information for the lagoons, is not sufficient to demonstrate that the residual radiological contamination in the lagoons is below the NRC unrestricted use criteria. Thus, the NRC considers that ABC is in a discovery phase, and that additional characterization survey work is needed to demonstrate that the lagoons meet the NRC unrestricted use criteria. If the licensee determines that the lagoons exceed the unrestricted use criteria, then the licensee will have to formally notify the NRC, and make a determination whether the lagoons can be cleaned under the provisions of ABC's license or if a DP will need to be submitted.

The licensee was advised that a more detailed HAS is needed for the two buried lagoons. The information should address, but not be necessarily limited to the following:

- A. Did a local authority permit the lagoons?
- B. Does ABC have any construction design or plans or information describing the construction of the lagoons? The NRC needs information regarding the size, depth, and barriers such as clay liner installed to prevent migration of materials and leakage from the lagoons.
- C. Does ABC have any site land survey records that can be used to locate the specific areas of the two lagoons?
- D. When were the lagoons constructed, first used, and when did their use stop?
- E. Where are the drain fields for the lagoons? How were the lagoons located? What was the depth? Where were the outfalls?
- F. Was any remediation or clean up of the lagoons performed before they were back-filled?
- G. Are there any past radiological or chemical survey results that were generated during and after the lagoons operations?
- H. Are there any records that document the volume of liquids that were processed through the two lagoons?
- I. Is there historical information in past ABC license documentation that addresses the use of the lagoons for disposal of liquids contaminated with radioactive materials?

- J. Are there any radioactive material disposal records?
- K. Describe the procedure for the collection of soil samples for the characterization of the two lagoons, regarding depth of sample collection and how samples were collected and prepared for analysis.
- L. Provide additional information regarding the above sampling that demonstrates that the samples are representative of the potential radiological contaminants associated with the two lagoons and their associated drain fields.

Topic 4: Current decommissioning activities being conducted in the licensee's Building D

The NRC inspectors discussed the licensee's decommissioning activities being conducted in Building D. The licensee indicated that Bionomics, an Agreement State licensed Waste Broker, contracted by ABC to do decommissioning activities in Building D, would resume work on Monday, August 16, 2010. The licensee indicated that the work would take approximately four to six weeks to complete. The licensee confirmed that the Interim RSO would oversee the work until the RSO candidate is approved. The licensee also confirmed that Bionomics will do decommissioning work under ABC's license authority, and that the work will not involve aggressive activities of the type needing prior NRC approval as discussed in 10 CFR 30.36(g)(1).

The NRC staff and licensee management discussed what constitutes aggressive activities during the meeting. One particular activity was discussed specific to the cutting of contaminated laboratory countertops found to have radiological contamination above release limits. The licensee staff asked if the ABC technicians perform measurements that bound the contamination, and perform the cutting in areas below the release limits if this would be considered an aggressive activity. The licensee management was advised based on this initial information that the activity would be considered aggressive and that a procedure would be required. The licensee was further advised that the purpose of the procedure was to ensure a consistent approach by different staff, to detail what constitutes levels safe for cutting, what controls will be put into place to monitor and prevent the spread of contaminated cuttings, monitor personnel, document the initial survey findings, and record the quantities of licensed material collected for disposal. The licensee was advised that since ABC possesses a Broadscope license, the licensee could request a license amendment to modify ABC's Radiation Safety Committee's duties and responsibilities that would allow the Committee to internally approve decommissioning procedures. Alternately, the licensee could amend their license to request approval of specific decommissioning procedures.

The licensee's management was further advised that the NRC will do a confirmatory survey of Building D prior to demolishing the structure, and that the licensee will need to provide the NRC a final status report prior to the confirmatory survey.

Topic 5: Management oversight pertaining to licensee control of NRC licensed materials and decommissioning activities.

As noted above under meeting participants, both the Interim RSO and the Company's RSO candidate participated in the meeting discussions. Both these individuals seemed to be

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engaged with the need to properly implement ABC's Broadscope licensed program. The Interim RSO confirmed the need to be present and involved in the oversight of the August 16, 2010 resumption of decommissioning activities at ABC. It was indicated that the RSO candidate would arrive on-site the week of August 16, 2010, and begin the process of being familiarized with ABC's program. It was indicated that an amendment request to add him to the license as the full-time RSO would be submitted the week of August 16, 2010. The licensee's management appears to be cooperating with the NRC and ensuring that NRC requirements and license conditions are met. It was further indicated during the meeting that ABC intends to retain its broadscope license.

The licensee's management was advised that the NRC plans to setup a public meeting as soon as possible, targeting early September 2010. This meeting will include all the above State Agencies, the NRC and licensee. The meeting will be open for public observation, but the public will not be involved directly in the business of the meeting. A short question and answer for the public will be allowed at the end of the meeting. The licensee was advised that a copy of this meeting report would be sent to them.

The meeting was closed and no other topics were tabled.