STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Mark N. Templeton, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

JUL 2 0 2010

U. S. Nuclear Regulatory Commission
ATTN: Mike McCann, Senior Health Physicist
Region III, DNMS
Material Control, ISFSI, and Decommissioning Branch
2443 Warrenville Road
Lisle, IL 60532-4352

Dear Mr. McCann:

At your request, the Missouri Department of Natural Resources (MDNR) and the Missouri Department of Health and Senior Services (DHSS) have reviewed information provided by the Nuclear Regulatory Commission (NRC) and Analytical Bio Chemistry Laboratories (ABC Labs).

Using the data provide by ABC Labs and their contractor, both within the Decommissioning Plan and otherwise, to adequately assess the health and safety issues associated with the lagoon closure is problematic. Staff members of both the MDNR and the DHSS have contributed to the following comments and concur. The comments fall within two major areas: the need for an expressed rationale and exposure model for the site that supports the collection and evaluation of data and application of the risk assessment; and usability of the data collected and presented thus far.

In order to determine what testing is needed, a site history and conceptual exposure model are needed. A site history is needed to determine what analytes to test for. A conceptual exposure model will make available an exposure assessment to determine where human exposure occurs, what medium needs to be tested, and the type of analytical test including reporting limits (RLs) (RLs should not exceed pathway-specific screening values), will be required. It is not clear to us what cleanup scenario or standard is being pursued, and this needs to be explicitly expressed. Is it intended for this site to meet residential standards, suitable for any use, or something else?

On June 30, 2010, I had a telephone conversation with Mr. Paul Nipper, consultant for ABC Labs. He appeared to be considering obtaining information about what wastes had been generated at this site in the past and might be in the lagoon, so ABC Labs may be already thinking in terms of a site history.

There are a number of issues that make using the data collected on the presence of chemicals problematic, especially with regard to assessing risk. We cannot say that there has been an

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adequate assessment of the site for chemical hazards at this time. The attached map (Combined Rad and Chemical.pdf) is a combination of most of the rad sampling locations (Attachment I.A Stop Light Map) and the chemical sampling locations (June 30, 2010, e-mail, Resource Conservation and Recovery Act Sampling Locations). The chemical sampling locations do not seem to be located in the area of highest rad activities. Sampling for chemical constituents in the area of rad impact may help characterize the site further.

We have some general concerns about the sampling that has been done, which may be dealt with in the NRC Request for Additional Information, if one is made. If not, we appear to need more information about the following areas.

A. There does not appear to have been any characterization of the groundwater for chemical contamination or discussion of it for the site. We are not aware of anything that would require chemical contamination to be inextricably linked to rad contamination at this site.
B. There appears to be an assumption that there is no need to look below the clay liner or downgradient of the leach pipe.

The DHSS evaluated the data for usability in a risk assessment. The radionuclide samples appear to be usable in a risk assessment. The non-radionuclide sample results are all toxicity characteristic leaching procedure, not usable in a risk assessment. Total analysis is required. Therefore, DHSS did not perform a thorough evaluation of the sample results or quality control for non-radionuclides.

Regarding use of the total petroleum hydrocarbon (TPH) analysis, acceptance and availability of screening values depends on the guidance followed. The screening values used for the current assessment are from Cleanup Levels for Missouri (CALM) guidance, which is no longer utilized. Missouri Risk Based Corrective Action Guidance (MRBCA) is an applicable standard for Missouri. A similar approach to addressing TPH is provided by the Total Petroleum Hydrocarbon Work Group (TPHWG). The Environmental Protection Agency (EPA) Region 7 accepts the TPHWG approach. TPHWG guidance is available on the Association for Environmental Health and Sciences website, http://www.aehs.com/publications/catalog/contents/tph.htm. No TPH values are provided in the EPA national screening value tables.

DHSS does not recommend use of the TPH sample results presented to date for the following reasons:

1. According to MRBCA and TPHWG guidance, analysis for aliphatic and aromatic compounds of specified carbon ranges (fractions) common to generic TPH values including TPH gasoline range organics (TPH-GRO), TPH diesel-range organics (TPH-DRO), and TPH oil-range organics (TPH-ORO) is recommended. Fraction analysis is not provided.

2. Each fraction risk-based target level (RBTL) is set to a hazard quotient (HQ) of one. When the product RBTL is derived by adding up the fraction RBTLs, the hazard index (HI) will exceed one. For example, TPH-GRO is composed of two aliphatic groups, and one aromatic fraction. Each fraction has an assigned RBTL set at an HI of 1. The TPH-GRO RBTL is the sum of all three fraction RBTLs, resulting in the TPH-GRO HQ equaling 3.

   If a product RBTL is used, the most conservative of the fraction RBTLs, and not the sum of the fraction RBTLs, should be used. This will assure that the RBTL HQ does not exceed 1, regardless of the composition of the contamination. Otherwise, comparison to MRBCA TPH-GRO, TPH-DRO, and TPH-ORO cannot be made unless further analysis of soils to identify the fractions. Acceptable analytical methods may be found in the MRBCA or TPHWG guidance.

3. TPH analysis should only be used on recent releases, not subject to weathering. Because guidance assumes that TPH products are composed of a fixed ratio of fractions, loss of one or more of the fractions due to weathering or transport, renders the TPH analysis inaccurate. Separation and weathering of the TPH product most likely occurred in the lagoon and absorption field.

4. The analytical results provided for TPH are somewhat dated (2005), and the analytical method used is unknown.

5. Product RBTLs are based upon non-carcinogenic risk, are not chemical-specific, and their reporting limit, 66 parts per million, exceeds RBTLs for many carcinogenic and non-carcinogenic chemicals. In addition to volatile organic compound (VOC) analysis, testing for semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PAHs) is necessary. PAHs are among the SVOCs that may drive risk at this site. Results from the VOC and SVOC analysis can be used to assess chemical-specific non-carcinogenic as well as carcinogenic risk.

Three additional notes:

1. The screening values are based upon CALM guidance. A current risk assessment approach to follow must be determined (i.e. MRBCA guidance or Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final, Office of Emergency and Remedial Response, EPA/540/1-89/002, December 1989)

2. A screening value for carbon-14 (C-14) is available in the EPA soil screening guidance for radionuclides.

3. The analytical data provided are from the year 2005. The need to re-analyze for VOCs should be discussed. If the lagoon has been utilized since that time, additional analysis for VOCs and metals is required.

4. Information has been provided to DHSS that pesticides were used in tests performed at this laboratory. Therefore, if pesticide analysis occurred at ABC Labs, the pesticide analysis for soils, groundwater, and sediment must be performed.

If you have questions concerning this letter, please contact me via telephone at (573) 751-0752, via e-mail at tom.judge@dnr.mo.gov, or through the mail at the Hazardous Waste Program, P.O. Box 176, Jefferson City, Missouri 65102-0176. I will try to direct those questions to the employees best able to answer them.

Sincerely,

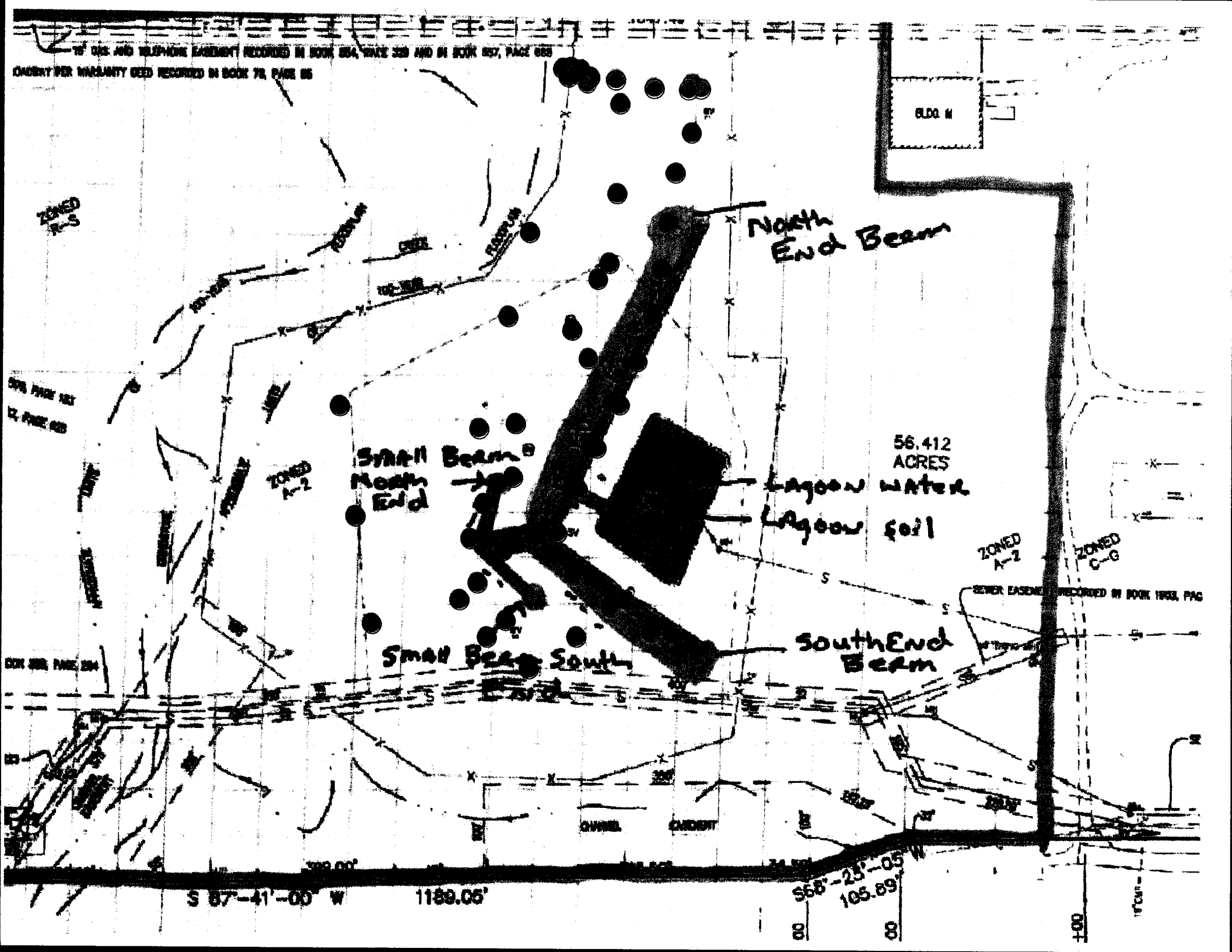
HAZARDOUS WASTE PROGRAM

Thomas M. Judge, RG, CHMM
Environmental Specialist
Hazardous Waste Enforcement Unit

TMJ:ml

Enclosure

c: Mr. Andrew McKinney, DHSS
Northeast Regional Office


North End Beam
Small Beam North End
Small Beam South
South End Beam
56.412 ACRES
Lagoon water
Lagoon soil
BLDG. M
ZONED R-3
ZONED A-2
ZONED C-G
S 67°-41'-00" W
1189.05'
S68°-25'-05" W
105.89'