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DEPARTMENT OF NATURAL RESOURCES

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K. L. COOL, Director

July 27, 1998

Mr. John W. N. Hickey, Chief
 Low-Level Waste and Decommissioning Projects Branch
 Division of Waste Management
 Office of Nuclear Material Safety and Safeguards
 U. S. Nuclear Regulatory Commission
 Mail Stop T-7 F27
 Washington, DC 20555-0001

Dear Mr. Hickey:

In response to your comment letter dated April 28, 1998, attached are the Michigan Department of Natural Resources' (MDNR) preliminary responses to each enumerated Nuclear Regulatory Commission (NRC) comment on our license application for the Tobico Marsh State Game Area Site (Docket Number 40-9015). It is not our intent that these responses be reviewed as a formal license submittal, but rather that they form the subject for a meeting between the MDNR and the NRC to discuss and develop finalized responses to the comments.

This meeting will enable the MDNR to not only address existing comments but also to resolve any other questions that might arise from responses to those comments. The MDNR has made four previous license application submittals, and because of past differences, changes in NRC project managers, and changes in NRC positions we believe that such a meeting is necessary to ensure that this is the last submittal needed to obtain an NRC license for our site.

Please note that a number of NRC comments pertain to information that was included in attachments to the September 5, 1997, license application submittal, which perhaps were not available to the reviewer making the comments. In these cases, our response specifically refers to the information that was previously submitted in order to assist the NRC in locating the information. If necessary, we can discuss whether the existing information satisfies the comment. The MDNR does not fully understand or is unsure of the amount of detail necessary to address the following NRC comments, and would like to discuss them in order to determine appropriate responses: Comment 5, credible accidents; Comment 22, environmental monitoring; and Comments 24, 25, and 27 regarding storage of low-level radioactive waste.

Mr. Tim Johnson of your staff indicated there was no need to re-write the license application as a part of the response to these comments. However, these comments are rather substantial and the MDNR would like to know how they will be incorporated into the license when it is issued.

AI 12

Mr. John W. N. Hickey

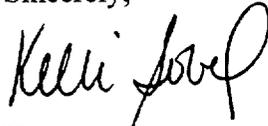
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Finally, we would like to take the opportunity at this meeting to discuss planned activities for the site over the next 24 months. We are especially interested in discussing the regulatory interaction and framework as we start to model the site, perform generic screening, develop preliminary derived concentration guideline values, and prepare the characterization plan.

Please have your project staff coordinate the scheduling of this meeting with Denise Gruben of our Office of Equal Opportunity and Legal Services. Her telephone number is 517-335-4036. Please do not hesitate to call either of us if you have any questions as you review the responses.

Sincerely,



Kelli Sobel, Deputy Director
Administrative Services
517-373-2425

Attachment

cc: Ms. Sherry Wu, NRC
Mr. Christopher D. Dobyms, MDAG
Mr. K. L. Cool, Director, MDNR
Ms. Cordree McConnell, MDNR
Ms. Denise Gruben, MDNR

**MDNR's Responses to the NRC's April 28, 1998 Comments
Tobico Marsh State Game Area Site (40-9015)**

GENERAL COMMENT

Comment 1

NRC: In accordance to the Timeliness Rule and 10 CFR 40.42(d), a licensee is required to submit a Decommissioning Plan (DP) within 12 months after the issuance of the license, unless the licensee has submitted an alternate schedule request. If the 12-months time period is not reasonable for MDNR to submit a DP, then submit an alternate schedule and reasons for this alternate schedule.

MDNR: MDNR does not consider the 12-month schedule to be reasonable. Characterization of the site has not yet been performed because it will involve invasive activities that require an NRC license and must be performed prior to preparing the DP. In addition, the NRC has not yet completed development of new regulatory guides, computer codes, and other guidance documents that are necessary for completion of a Decommissioning Plan (DP).

MDNR estimates that it will take several months to perform the preliminary dose assessment and to develop a characterization survey work plan. By that time, it will be too late in the year to perform the characterization survey due to the harsh winter weather in the area. As such, the MDNR plans to initiate the characterization survey in the following summer/fall.

MDNR proposes an alternative 24-month schedule. A characterization plan will be prepared and submitted by spring of 1999, and implemented during the summer/fall of 1999. The DP will be prepared after completion of the characterization survey and submitted to the NRC in the summer of 2000, no later than 24 months after issuance of the license.

SPECIFIC COMMENTS

Section 6.0 PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED

Comment 2

NRC: The Leachate Collection and Treatment System (LCTS) is listed as one of the purposes for which licensed material will be used at the MDNR Tobico Marsh site. Please provide additional information on the operation of the system, as requested in Questions 4 and 6, below. Otherwise, it should be stated that all references to the LCTS are to be excluded from the license application.

Please note that if MDNR decides to exclude the LCTS from its license application, NRC will include a license condition stating that MDNR shall request approval from NRC prior to operation, if the LCTS is ever operated.

MDNR: All references to the Leachate Collection and Treatment System (LCTS) are to be excluded from the September 5, 1997 license application, as MDNR does not have any current plans to operate the system. MDNR understands that the NRC will include a license condition stating that MDNR shall request approval from the NRC prior to operation.

Section 9.0 FACILITIES AND EQUIPMENT

Comment 3

NRC: Explain the purpose and function of a force main.

MDNR: As stated in the response to Comment 2, all references to the Leachate Collection and Treatment System (LCTS) are to be excluded from the September 5, 1997 license application. The force main is a portion of that system.

Comment 4

NRC: If MDNR is applying for operation of the LCTS, describe the system design and function of the LCTS. How will it be operated? Provide diagrams for drawings of the system.

MDNR: As stated in the response to Comment 2, all references to the Leachate Collection and Treatment System (LCTS) are to be excluded from the September 5, 1997 license application.

Comment 5

NRC: Identify all credible accidents at the Tobico Marsh site. For each, provide: (1) the cause of the event; (2) detection of the event; (3) summary of the event, radiological consequences, and regulatory compliance; and (4) corrective course of action. If MDNR believes that there is no credible accident scenario during site characterization involving radioactive materials, provide justification for this conclusion.

MDNR: The objectives of this license are to establish controls for routine maintenance of the site and to control invasive activities that are expected to be conducted on the site during characterization activities. Considering the following facts, there are few credible accidents that could result in off-site doses: the source material present on the Tobico Marsh SGA site is encapsulated by a clay cap on top, slurry walls on all sides, and a natural clay layer beneath; there are no operating radiological systems; and characterization will only involve surveys, invasive sampling, and possibly test pits. Credible accidents are limited to those resulting from sample handling and shipment, soil boring, test pit activities, and natural disasters. MDNR would like to receive guidance from

the NRC regarding credible accidents that were analyzed by similar SDMP sites and the documentation of such analyses.

Comment 6

NRC: If MDNR is applying for operation of the LCTS, identify all credible accidents at the Tobico Marsh site during operation of the LCTS. For example, postulated accidents may include a fire(s) in the LCTS, or the operation of the system without a filter, etc. For each, provide: (1) the cause of the event; (2) detection of the event; (3) summary of the event, radiological consequences, and regulatory compliance; and (4) corrective course of action.

MDNR: As stated in the response to Comment 2, all references to the Leachate Collection and Treatment System (LCTS) are to be excluded from the September 5, 1997 license application.

Section 10.1 ALARA Commitment

Comment 7

NRC: Identify the ALARA targets and action levels for your Radiation Safety Program.

MDNR: ALARA goals for individual dose, collective dose, and loose surface contamination are identified in the *ALARA Program*, dated August 15, 1997. This program was submitted to the NRC as part of the September 5, 1997 license application.

Comment 8

NRC: Will MDNR use an ALARA program as a guide to achieve compliance with your ALARA commitments?

MDNR: MDNR intends to use an ALARA program as a guide to achieve compliance with its ALARA commitments. The *ALARA Program*, dated August 15, 1997, was submitted to the NRC as part of the September 5, 1997 license application. The NRC provided MDNR with specific comments regarding this *ALARA Program* in its April 28, 1998 letter.

Section 10.8 Control of Licensed Material

Comment 9

NRC: Will there be a sign-in procedure for those entering the site?

MDNR: MDNR intends to implement the procedure entitled *Personnel Site Access*, dated August 15, 1997, which describes the sign-in procedure. This procedure was submitted to the NRC as part of the September 5, 1997 license application.

Section 10.10 Instrumentation

Comment 10

NRC: What are the alpha/beta counting systems?

MDNR: Alpha/beta counting systems that are expected to be used at the Tobico Marsh SGA site are listed on page 12 of the *Radiation Safety Program*, dated August 15, 1997, which was submitted to the NRC as part of the September 5, 1997 license application. These instruments include the following, or equivalent:

Field Instruments:

Alpha frisker: Eberline Model RM-20 ratemeter coupled to Eberline Model AC-3 ZnS alpha scintillator.

Beta frisker: Eberline Model RM-20 ratemeter coupled to Eberline Model HP-260 GM detector.

Laboratory (Benchtop) Instruments:

Alpha smear/
filter counter: Eberline Model SAC-4 ZnS alpha sample counter.

Beta smear/
filter counter: Ludlum Model 1000 scaler coupled to Eberline Model HP-210 shielded GM detector and Eberline Model SH-4 sample changer.

Comment 11

NRC: MDNR should state that the instruments are appropriate for the radiation types to be encountered at the Tobico Marsh site and have minimum detectable activities well below the decontamination limits in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," Policy and Guidance Directive 83-23, August 1987. Does MDNR commit to decontaminate its equipment to these levels?

MDNR: The instrumentation that are expected to be used are appropriate for the radiation types that may be encountered at the Tobico Marsh SGA site. Such instrumentation will be calibrated to NIST traceable sources with radiation energies equal to or approximately equal to the radiation that may be encountered. The minimum detectable activities associated with these instruments are well below the detection limits in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material." Policy and Guidance Directive 83-23, August 1987. The MDNR

commits to decontaminate equipment to levels below those reported in the above stated Policy and Guidance Directive prior to unrestricted release.

Section 10.11 Internal Exposure

Comment 12

NRC: Identify the instrumentation used to monitor intakes of radioactive materials.

MDNR: Lapel (breathing zone) air samplers, Victoreen Model 08-430 Personal Air Samplers, or equivalent, will be used to collect filter paper samples for internal exposure monitoring purposes. The filter paper samples will be analyzed for gross alpha radioactivity using the laboratory (benchtop) alpha counting system (described in the response to Comment 10). The procedure entitled *Operation of the Lapel Air Sampler*, dated August 15, 1997, describes this process and was submitted to the NRC as part of the September 5, 1997 license application.

Section 10.12 External Exposure

Comment 13

NRC: Identify the instrumentation used to monitor external dose of radioactive materials, e.g. self-reading personal dosimeters.

MDNR: As stated in Section 10.12 of the September 5, 1997 license application, external dose will be monitored using thermoluminescent dosimeters (TLDs). During invasive activities, a Bicron Micro-rem LE tissue equivalent organic scintillation detector, or equivalent, will be used to monitor gamma dose rates. Based on the results of surveys performed with the detector, appropriate radiological controls will be implemented to minimize personnel exposure and maintain ALARA. It should be noted that the highest exposures measured at the site prior to waste encapsulation were 200 $\mu\text{R/hr}$ on contact with source material and 100 $\mu\text{R/hr}$ at waist level (NRC SECY-90-121).

Section 10.14 Bioassay Program

Comment 14

NRC: Identify the instrumentation used to determine airborne radioactivity. Describe the criteria used to determine the need for routine or special bioassay.

MDNR: Lapel (breathing zone) air samplers, Victoreen Model 08-430 Personal Air Samplers, or equivalent, will be used to collect filter paper samples for internal exposure monitoring purposes. The filter paper samples will be analyzed for gross alpha radioactivity using the laboratory (benchtop) alpha counting system (described in the response to Comment 10). The procedure entitled *Operation*

of the *Lapel Air Sampler*, dated August 15, 1997, describes this process and was submitted to the NRC as part of the September 5, 1997 license application.

MDNR does not intend to implement a routine bioassay program since bioassay techniques are not capable of detecting intakes substantially below the thorium ALI. Lapel air sampling will serve as the primary routine monitor for internal exposure, as described in the response to Comment 14 and recommended in Information Notice 96-18.

When an individual receives an internal exposure greater than or equal to 40 DAC-Hrs in one week, a special bioassay will be performed. Section 11.0 of the *Radiation Safety Program* will be revised to reflect this.

Comment 15

NRC: Will MDNR commit to follow Information Notice 96-18, "Compliance with 10 CFR Part 20 for Airborne Thorium," if bioassay assessment is implemented?

MDNR: MDNR commits to following Information Notice 96-18, "Compliance with 10 CFR Part 20 for Airborne Thorium," if bioassay assessments are implemented.

Section 10.15 Contamination Surveys

Comment 16

NRC: What are the action levels of the surveys? Describe the course of action the MDNR would take in situations where results exceed that level.

MDNR: MDNR action levels for contamination surveys are listed in the procedure entitled *Radiological Surveys*, dated August 15, 1997, which was submitted to the NRC as part of the September 5, 1997 license application. The action levels are as follows:

Loose Contamination: 20 dpm/100 cm² alpha
 200 dpm/100 cm² beta

Fixed Contamination: 100 dpm/100 cm² alpha
 1000 dpm/100 cm² beta

Personnel access to areas that are found to be contaminated in excess of the action levels stated above will be controlled in accordance with applicable procedures and standard health physics practices. Materials contaminated in excess of the action levels will be treated as contaminated material when on the site. If materials are contaminated in excess of the action levels but less than the levels specified in Table 10.1 of the September 5, 1997 license application, they may be released for unrestricted use off the site. However, efforts will be made to reduce contamination to the administrative action levels prior to release for unrestricted use. If contamination exceeds the Table 10.1 levels, the

materials will be containerized, labeled, and stored in accordance with applicable regulatory and license requirements and may not be released for unrestricted use.

Section 10.19 Liquid Effluents

Comment 17

NRC: How is liquid effluent controlled? How is liquid effluent monitored?

MDNR: There are currently no liquid effluents from the Tobico Marsh SGA site. The LCTS is designed to release liquid effluents, however as previously stated, MDNR does not currently intend to operate the LCTS. As such, liquid effluent is not routinely monitored.

Comment 18

NRC: What is the action level? Describe the course of action the MDNR would take in situations where effluent releases exceed that level.

MDNR: MDNR action levels for liquid effluents are those listed in Table 2 of Appendix B to 10 CFR Part 20. In the event that potentially contaminated liquids are collected, such as during invasive activities, they will be containerized, sampled, and the sample results compared to applicable action levels prior to release. In the event that collected liquids exceed the action level, they will be containerized, labeled, stored, and disposed of in accordance with applicable regulatory and license requirements. By following this procedure, liquid effluent releases will not exceed action levels.

Section 10.20 Airborne Effluents

Comment 19

NRC: How are airborne effluents controlled? How are airborne effluents monitored, e.g., alarming air monitors?

MDNR: There are currently no airborne effluents from the Tobico Marsh SGA site. The clay cap that encases the source material prevents airborne releases of radioactive material. The LCTS is designed to release airborne effluents, however as previously stated, MDNR does not currently intend to operate the LCTS. As such, airborne effluents are not routinely monitored.

In the event that airborne contaminants are potentially released, such as during invasive activities, engineering controls will be implemented, as appropriate, to minimize airborne contamination. When such activities occur, air samples will be collected on filter paper and analyzed to determine radioactivity concentration.

Comment 20

NRC: Identify any instrumentation used to sample and monitor exhaust from systems.

MDNR: There are no systems on the Tobico Marsh SGA site that exhaust airborne effluents. The LCTS is designed to exhaust airborne effluents, however as previously stated, MDNR does not currently intend to operate the LCTS. Additionally, MDNR does not currently intend to install or operate other such systems.

Comment 21

NRC: What are the action levels? Describe the course of action that MDNR would take in situations where effluent releases exceed that action level.

MDNR: MDNR does not intend to install or operate any systems that could exhaust airborne effluents that are potentially contaminated with radioactive material.

Comment 22

NRC: What provisions have been made for environmental monitoring?

MDNR: MDNR has no current plans to implement an environmental monitoring program, based on the following facts: 1) MDNR has committed, in the license application, to perform quarterly radiation surveys; 2) the source material present on the Tobico Marsh SGA site is encapsulated by a clay cap on top, slurry walls on all sides, and a natural clay layer beneath; 3) an extensive evaluation of the groundwater/leachate within the encapsulated area indicates that the subject source material is not readily soluble and therefore not easily transported; and 4) gamma walkover surveys, *in-situ* gamma spectroscopy analyses, and sample analyses performed during a Scoping Survey of the site did not identify contamination outside the encapsulated area.

Section 11.1 Low-Level Radioactive Waste (LLW)

Comment 23

NRC: The offsite disposal of LLW should meet the waste classification and waste form requirements of 10 CFR Part 61, meet the applicable disposal site license conditions, and meet Department of Transportation and 10 CFR Part 71 transportation requirements. Will MDNR commit to meet them?

MDNR: MDNR commits to meet the waste classification and waste form requirements of 10 CFR Part 61, meet the applicable disposal site license conditions, and meet Department of Transportation and 10 CFR Part 71 transportation requirements for disposal of offsite waste.

Comment 24

NRC: The license application stated that interim LLW storage shall be in locked sea-land containers or trailers or in other building(s) or enclosures onsite. Where would these be located onsite? Under what conditions would one interim storage containment be more likely to be utilized than another?

MDNR: If required, MDNR plans to store LLW within the LCTS building or within locked containers located onsite. The LCTS building is located on the most elevated portion of land within the restricted area. If use of the LCTS building is not feasible, or additional space is required, a container will likely be placed just north of the LCTS building which is also elevated land.

The LCTS building will be used for temporary storage of small quantities of LLW due to space limitations. In the event that the LCTS building can not be used, either due to space limitations or other reasons, a locked sea-land, temporary building, or similar structure will be utilized. The type of containment will be based on volume and projected duration of LLW storage. Any containment that is used will be of sufficient strength to withstand the expected weather conditions at the site.

Comment 25

NRC: The license application stated that packages containing liquid waste shall not be stored outside. Provide additional information as to where MDNR plans to temporarily store liquid waste onsite.

MDNR: Liquid contaminated with radioactive material will be stored in locked sea-land containers or trailers or in other building(s) or enclosures onsite along with other LLW, as described in the response to Comment 24.

Comment 26

NRC: Of what materials are the package containers constructed? How does this material prevent unacceptable release of radioactive materials?

MDNR: Package containers used to store LLW will meet or exceed U.S. Department of Transportation requirements for shipment of such waste. Packages containing liquid waste will be placed in a secondary containment with sufficient capacity to capture the entire contents of the primary package in the event of leakage. In addition, MDNR commits, in the September 5, 1997 license application, to perform quarterly inspections and exterior contamination surveys on such containers.

Comment 27

NRC: What is the potential for flooding of and erosion from the temporary storage area? What is the ability of the temporary storage facilities to effectively resist erosion by wind and water under these potentials?

MDNR: The potential for flooding of, or erosion from, any on-site area used for temporary storage is extremely low. This estimation of potential is supported by the fact that the site is located on the boundary between the 100 and 500 year floodplain. In addition, the site's cap increases the elevation in the area of the LCTS building by 8 to 10 feet above the elevation of the surrounding marsh, on which the floodplain determination is based. Given the potential stated above, the proposed temporary storage facilities are more than adequate to effectively resist erosion via the agents of wind or water.

Section 16.0 ORGANIZATION AND PERSONNEL

Comment 28

NRC: The Radiation Safety Engineer and Health and Safety Officer are not shown on the organization chart in Figure II-3. Identify these positions on the organization chart.

MDNR: MDNR has attached a revised organization chart.

Section 16.2 Resume of Key Personnel Important to Safety

Comment 29

NRC: The qualifications listed on the resume of the Radiation Safety Officer (RSO) named on the license application does not meet the NRC qualifications for an RSO. The RSO should have had relevant on-the-job experience, as well as sufficient knowledge of the radiation safety program. Submit for NRC review a resume with adequate qualifications to be the RSO of the MDNR Tobico Marsh site.

MDNR: The resume of the Radiation Safety Officer (RSO) named on the license application has been revised to include more detail regarding the individual's experience relative to radiation safety. The revised resume is attached.

Section 17.2.2 Radiation Dose Limits for the Unborn Child

Comment 30

NRC: The occupational exposure limit should be for a "declared pregnant woman" instead of "expectant mother." Will MDNR provide information to radiation workers about declaration of pregnancy?

MDNR: All references to "expectant mother" in the September 5, 1997 license application are to be changed to "declared pregnant woman." MDNR commits to provide information to radiation workers about declaration of pregnancy.

Section 17.4 Personnel Internal Radiation Monitoring

Comment 31

NRC: Identify the exposure limits.

MDNR: MDNR internal exposure limits are those listed in Table 1 of Appendix B to 10 CFR Part 20. MDNR action levels for internal exposure are those listed in Section 5.1.1 of the *ALARA Program*, dated August 15, 1997, which was submitted to the NRC as part of the September 5, 1997 license application. The *ALARA Plan* states: "Intakes greater than 4 DAC-Hrs in one day for any individual shall be investigated by the RSO or duly authorized representative. Average intakes greater than 20 DAC-Hrs for any individual in one month shall also be investigated."

ALARA PROGRAM

Section 5.1.3 Total Effective Dose Equivalent (TEDE)

Comment 1

NRC: MDNR's goal for TEDE is 700 mrem/yr. This is inconsistent with the goals for internal and external dose. The goal for internal dose is 500 DAC-hrs per year per individual, which is the equivalent to 1.25 rem. When this is added to the external dose goal of 250 mrem, the result, (1.5 rem) is well over the goal of 700 mrem TEDE.

MDNR: There is a typographical error in the first paragraph of Section 5.1.1 of the *ALARA Program*. The paragraph will be revised to state:

The goal of the MDNR is to keep each individual's internal dose for the entire year below 500 mrem and the total collective internal dose for the group below 2,000 mrem.

The ALARA goals reported in Section 6.0 of the *ALARA Program* of 250 mrem/yr. external, 500 mrem/yr. internal, and 700 mrem/yr. TEDE are correct.

MDNR is aware that the sum of the external and internal ALARA goals is 750 mrem/yr. (i.e., not 700 mrem/yr. TEDE), however these goals are intended to be applied individually. MDNR is committed to an ALARA goal of 700 mrem/yr. TEDE, regardless of the external and internal ALARA goals.

Section 5.2.1 Air Effluent

Comment 2

NRC: Determine the airborne effluent release ALARA goal.

MDNR: MDNR does not intend to install or operate any systems that could exhaust airborne effluents that are potentially contaminated with radioactive material. The LCTS is designed to exhaust airborne effluents, however as previously stated, MDNR does not currently intend to operate the LCTS.

TRAINING PROGRAM

Section 6.0 Instructions

Comment 3

NRC: MDNR has committed to cover radiation protection regulations of 10 CFR Parts 19, 20, 40, and 71 in the personnel training programs, commensurate with the hazards faced by the worker. NRC staff believes that four hours of training is insufficient to include all the subjects needed and for the students to absorb all the information adequately. NRC staff believes that training should be expanded to 6 to 8 hours to adequately cover all the topics identified in Appendix A of the Training Program.

MDNR: MDNR will conduct training programs of sufficient length to include all the subjects needed and for the students to absorb all the information adequately. The training program will be expanded to six hours to ensure adequate coverage of all the topics identified in Appendix A of the *Training Program*.

Appendix A Instructors Outline

Comment 4

NRC: Specific training on prenatal radiation exposure has not included information on declaring pregnancy. Workers should be given instruction on parental exposure and declaration of pregnancy per Regulatory Guide 8.13.

MDNR: MDNR will provide instruction to workers at the Tobico Marsh SGA site regarding parental exposure and declaration of pregnancy per Regulatory Guide 8.13. The *Training Program* will be revised to reflect this.

Comment 5

NRC: Workers should be instructed that they are able to request radiation exposure reports pursuant to 10 CFR 19.13.

MDNR: MDNR will instruct workers at the Tobico Marsh SGA site that they are able to request radiation exposure reports pursuant to 10 CFR 19.13. The *Training Program* will be revised to reflect this. It should be noted, that Appendix A, page 14, of the *Training Program* mentions worker rights to request radiation exposure history, however, it does not include a specific reference to 10 CFR 19.13.

Comment 6

NRC: The abbreviation “mr” used to mean “mrem” is not standard. “mR” is the symbol for milliroentgen.

MDNR: MDNR will change all references to “mr” in Appendix A to the *Training Program* to “mrem” or “mR” as appropriate.



FIGURE II-3
ORGANIZATION
TOBICO MARSH STATE GAME AREA SITE

DENISE SANDRA GRUBEN
Michigan Department of Natural Resources
P.O. Box 30028, Lansing, MI 48909
517-335-4036

EDUCATION

Michigan State University, East Lansing, Michigan,
M.S.-Natural Resources Management, Minor-Limnology

University of Rhode Island, Kingston, Rhode Island
B.S.-Natural Resources/Wildlife Management, Minor-Zoology

PROFESSIONAL WORK EXPERIENCE

September 1992-Present Environmental Quality Specialist 13/Analyst VII, Michigan Department of Natural Resources (MDNR), Office of Litigation and Program Services (OLPS). Duties include litigation assistance to the Department of Attorney General on cases involving the Resource Bureau of the MDNR; management of Department-owned remedial projects, including technical review, fund management, oversight of field operations, and contractor management.

Specific experience with radioactive materials management includes 2.8 years functioning as RSO/Project Manger for all aspects of the MDNR Tobico Marsh SGA Site. Duties include: 1) development of a plan for evaluation of the sanitary sewer system, 2) planning and execution of 3 separate rounds of sampling for radioactive characterization of leachate, 3) interpretation and development of the summary report for a radiological characterization of leachate at the landfill, 4) planning, execution, interpretation and development of a preliminary background assessment to establish ambient radioactive conditions in the vicinity of the site, 5) planning, execution, interpretation, and reporting for completion of a Historical Site Assessment in accordance with MARSSIM, 6) planning, execution, interpretation and development of a scoping survey (in progress), 7) interactions with NRC during this period include interpretation of comments on 3 license applications, coordinated with NRC re: changing to fuel cycle license (complete rewrite of license), development of associated radiological safety documentation, including a radiation safety program, training program, and ALARA program, and all 15 associated Health Physics Procedures, 8) currently planning the development of characterization survey work plan, 9) preparing to complete dose modeling per DG 4006.

April 1987-September 1992 Env. Quality Analyst VI and VII, (Lead Worker), MDNR, Environmental Response Division (ERD). Duties included providing guidance to journeyman level workers, management of Superfund remedial action projects, financial tracking, environmental monitoring, oversight of cleanup operations, negotiations, community relations, technical reviews, securing EPA funding.

June 1984-October 1987 Env. Quality Analyst/Water Quality Specialist IV-VI and SI, MDNR, ERD/Groundwater Quality Division (GQD), Site Assessment Unit. Duties included pre-remedial activities such as preparation of CERCLA/SARA Cooperative Agreements, CERCLA grant management, QAPP preparation, MERA and CERCLA site evaluations and prioritization, and MERA model analysis.

PROFESSIONAL TRAINING

Radiation Safety at Superfund sites, 40-hour course, Columbus Ohio, October 23-27,1995 taught by Haliburton NUS Corporation.

Attended 8-hour training session on new license termination framework per NRC July 21, 1997 rule changes.

Management, Expert Witness, Personnel Protection and Safety (updated annually), CPR/First Aid, Risk Assessment, Current Computer Software and Hardware.