



Michigan Department of Environmental Quality
Waste and Hazardous Materials Division

SOLID WASTE DISPOSAL AREA OPERATING LICENSE

This license is issued under the provisions of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq., and authorizes the operation of this solid waste disposal area (Facility) in the state of Michigan. This license does not obviate the need to obtain other authorizations as may be required by state law.

FACILITY NAME: D E Karn 1 & 2 Solid Waste Disposal Area

LICENSEE/OPERATOR: Consumers Energy Company

FACILITY OWNER: Consumers Energy Company

PROPERTY OWNER: Consumers Energy Company

FACILITY TYPE(S): Type III Low Hazard Industrial Landfill

FACILITY ID NUMBER: 392503

COUNTY: Bay

LICENSE NUMBER: 9234

ISSUE DATE: October 15, 2009

EXPIRATION DATE: October 15, 2014

FACILITY DESCRIPTION: The D E Karn 1 & 2 Solid Waste Disposal Area, a Type III low hazard industrial landfill, consists of 171 acres located at portions of Sections 1 and 2, T14N, R5E, and a fraction of Section 35, T15N, R5E, Hampton Charter Township, Bay County, Michigan, as identified in Attachment A and fully described in this license.

AREA AUTHORIZED FOR DISPOSAL OF SOLID WASTE: Areas A, B1, B2, C, D1, D2, and E, which include the ash settling basins, the clarification ponds, and the ash transport ditches..

RESPONSIBLE PARTY: Jon W. Carpenter
Consumers Energy company
2742 North Weadock Highway
Essexville, MI 48732
989-891-2982

RENEWAL OPERATING LICENSE: This License Number 9234 supersedes and replaces Solid Waste Disposal Area Operating License Number 9023 issued to Consumers Energy Company on June 3, 2004.

This license is subject to revocation by the Director of the Michigan Department of Environmental Quality if the Director finds that this Facility is not being constructed or operated in accordance with the approved plans, the conditions of a permit or license, Part 115, or the rules promulgated under Part 115. Failure to comply with the terms and provisions of this license may result in legal action leading to civil and/or criminal penalties pursuant to Part 115. This license shall be available through the licensee during its term and remains the property of the Director.

THIS LICENSE IS NOT TRANSFERABLE.

Steven R. Sliver, Chief, Storage Tank and Solid Waste Section
Waste and Hazardous Materials Division

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Operating License Number: 9234
Issue Date: October 15, 2009

The licensee shall comply with all terms of this license and the provisions of Part 115 and the administrative rules implementing Part 115 (Part 115 Rules). This license includes the license application and any attachments to this license.

1. The licensee shall operate the Facility in a manner that will prevent violations of any state or federal law.
2. The following portions of the Facility are authorized to receive solid waste by this license:

ACTIVE PORTIONS NOT AT FINAL GRADE: The area(s) identified as A, B1, B2, C, D1, D2, and E, which include the bottom ash settling basins, clarification ponds, and the ash transport ditches, were authorized to receive waste by the previous license. This area's total acreage is 171 acres.
3. The following portions of the Facility **WILL BE** authorized to receive solid waste by this license following approval by the Michigan Department of Environmental Quality (MDEQ) of construction certification: None.
4. The following portions of the Facility are **NOT** authorized to receive solid waste by this license: None.
5. The attached map (Attachment A) shows the Facility, the area permitted for construction, monitoring points, leachate storage units, site roads, other disposal areas, and related appurtenances.
6. Issuance of this license is conditioned on the accuracy of the information submitted by the Applicant in the Application for License to Operate a Solid Waste Disposal Area (Application) received by the MDEQ on June 2, 2009, and any subsequent amendments. Any material or intentional inaccuracies found in that information is grounds for the revocation or modification of this license and may be grounds for enforcement action. The licensee shall inform the MDEQ's Waste and Hazardous Materials Division (WHMD), Saginaw Bay District Supervisor, of any inaccuracies in the information in the Application upon discovery.
7. This license is issued based on the MDEQ's review of the Application, submitted by Harold D. Register, Jr., for the Consumers Energy Company, dated May 28, 2009, and revised June 29, 2009. The Application consists of the following:
 - a. Application Form EQP 5507.
 - b. Application fee in the amount of \$2,500.00.
 - c. Certification of construction by NA.
 - d. Waste Characterization: N/A.
 - e. Restrictive Covenant:

The June 1, 2000 restrictive covenant on 171 acres is on file at the Bay County Register of Deeds recorded on September 15, 2000, as Liber 1706 pages 410-413. A copy is on file with the MDEQ.

- f. Perpetual Care Fund Agreement, established as a trust account, signed by Mr. Robert A. Finch, Senior Vice President, Nuclear, Fossil & Hydro Operations, Consumers Energy company on August 14, 1997, was executed by the MDEQ on September 23, 1997.
- g. Financial Assurance.
 - i. Financial Assurance Required:

The amount of financial assurance required for this Facility was calculated based on the calculation worksheet form EQP 5507A entitled, "Form A, Financial Assurance Required," and includes a Surety Bond of \$20,000.00 per acre of licensed landfill, and the Perpetual Care Fund requirement.

The Facility has provided financial assurance totaling \$1,189,768.39, based on the requirements of Section 11523 of Part 115, consisting of a combination of the Perpetual Care Fund established under

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Section 11525 of Part 115, and the bonding requirements of Section 11523 (1)(a) of Part 115. The financial assurance mechanisms used by the Facility are summarized below in Items ii and iii, respectively.

ii. Financial Assurance Provided Via a Perpetual Care Fund:

The Perpetual Care Fund Agreement statement showed a balance of \$189,768.39 in the Facility's Perpetual Care Fund as of February 28, 2009.

iii. Financial Assurance Provided Via Bond:

The following financial assurance has been received from the Applicant to meet the amount of financial assurance required:

Irrevocable Letter of Credit	\$1,000,000.00
Total Amount Received:	\$1,000,000.00

8. The following documents approved with Construction Permit Number(s) 0195 issued to Consumers Power Company on December 15, 1986, are incorporated in this license by reference:

Construction Permit Application and Support Documents, prepared by Consumers Power Company, dated August 1986.

9. The following additional documents, approved since the issuance of the construction permit(s) referenced in Item 8, are incorporated in this license by reference:

- a. Groundwater Permit Exemption Number GWE-005, dated August 21, 1986.
- b. Alternate Water Quality Monitoring Plan, prepared by Consumers Power Company, dated October 21, 1992.
- c. Designation of Inertness 92-I-020, dated February 19, 1993.
- d. Certification of Construction, prepared by Consumers Power Company, dated July 21, 1995.
- e. Alternate Groundwater Quality Monitoring Plan, prepared by Consumers Power Company, dated August 22, 1995.
- f. Authorization to Discharge, GWE 0005, dated February 1, 2001.
- g. Phase II Workplan for Karn and Weadock, prepared by Natural Resource Technology, dated September 10, 2003.

10. Consent Order/Judgment Number: N/A.

11. The licensee shall repair any portion of the certified liner or leachate collection system that is found to be deficient or damaged during the term of this license unless determined otherwise by the MDEQ.

12. The licensee shall have repairs to any portion of the certified liner or leachate collection system recertified by a registered professional engineer in accordance with R 299.4921 of the Part 115 Rules and approved by the MDEQ before receiving waste in that portion of the certified liner or leachate collection system. The licensee shall submit the recertification to the MDEQ's WHMD, Saginaw Bay District Supervisor, for review and approval.

13. The licensee shall conduct hydrogeological monitoring in accordance with the approved hydrogeological monitoring plan, dated August 22, 1995, and approved December 6, 1995. A revised hydrogeological monitoring plan is required by special conditions, including a submittal and approval schedule. The sampling analytical results shall be submitted to the MDEQ's WHMD, Saginaw Bay District Office.

14. Modifications to the approved hydrogeological monitoring plan referenced in Item 13 may be approved, in writing, by the WHMD, Saginaw Bay District Supervisor. Proposed revisions must be submitted in a format specified by the MDEQ.

15. Leachate may be recirculated if a leachate recirculation plan has been approved, in writing, by the Waste and Hazardous Materials Division, Saginaw Bay District Supervisor.

16. Modifications to approved engineering plans that constitute an upgrading, as defined in R 299.4106a(l) of the Part 115 Rules, may be approved, in writing, by the WHMD, Saginaw Bay District Supervisor.

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17. Requests for alternate daily cover may be approved, in writing, by the Waste and Hazardous Materials Division, Saginaw Bay District Supervisor.

18. Leakage Control Criteria:

This Type III Facility is a monitorable unit and, therefore, does not need to be in compliance with the leakage control criteria of R 299.4422 of the Part 115 Rules.

19. **VARIANCES:** The licensee is granted the following variance(s) from Part 115 and/or the Part 115 Rules:

The Facility is granted the variances approved in a December 12, 1986, letter as part of Construction Permit Number 0195 issued to Consumers Power Company, on December 15, 1986. The variances were issued pursuant to the administrative rules for the Solid Waste Management Act, 1978 PA 641, as amended, that were in effect when the construction permit was issued. The administrative rules in effect at that time had an effective date of January 6, 1982.

20. **SPECIAL CONDITIONS:**

- a. On August 26, 2009, the MDEQ provided Consumers Energy (CE) with revised and confirmed Groundwater Surface Water Interface (GSI) Mixing Zone Compliance Criteria prepared by the DEQ, Water Bureau. These criteria are referenced as an attachment to this license and shall be used to design facility improvements, demonstrate performance, and to evaluate compliance at the GSI.
- b. On September 11, 2009, CE submitted by email transmittal to the DEQ, Waste and Hazardous Materials Division (WHMD), for review and approval, a revised Hydrogeological Monitoring Plan (HMP) for the Karn Disposal Area. The HMP once approved shall include a GSI Compliance Monitoring Program for continued applicable Part 31 Water Resources Act monitoring and for applicable Part 115 compliance monitoring under the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended. The GSI Compliance Monitoring Program shall define: landfill leachate quality, coal ash leach potential characterization, landfill hydraulic head information, slurry wall (or comparable) system performance, groundwater quality along landfill boundaries, groundwater quality at the GSI, and groundwater quality step-out monitoring if any points at the GSI appear to exceed criteria. The revised HMP for the Karn Disposal Area is not yet approved and shall be further revised and resubmitted for review, and to request approval by the DEQ, WHMD within 60 days (on or before November 23, 2009) of CE receiving the Final Review Comments Letter dated September 23, 2009, from DEQ, WHMD, regarding the Karn Disposal Area HMP that was submitted on September 11, 2009. If a second round of Final Review Comments and revisions are necessary, then CE must obtain approval by the DEQ, WHMD by December 23, 2009, in order to remain in compliance with this license. The approved Karn Disposal Area HMP shall become an enforceable component of this license. Thereafter, CE shall continue to monitor in accordance with the approved Karn Disposal Area HMP until a subsequently revised HMP may be approved by the DEQ under this condition.

The approved HMP for this facility, including the GSI Compliance Monitoring Program and any subsequent approved revision thereto, is enforceable under this license. CE may request that the DEQ, WHMD, consider a revision to the HMP and the GSI Compliance Monitoring Program by submitting a request for a revision that provides sufficient detail as to the modifications requested, including any proposed modifications to the monitoring parameters, methods, locations, frequencies, and modeling or statistical analyses used, and provides justification for the modifications to the DEQ for review and approval. CE may request a recalculation of the GSI Mixing Zone Compliance Criteria for this facility based on the NREPA's amendments and rules in effect at the time of the request.

- c. On or before December 31, 2009, CE shall submit to the DEQ, WHMD, for review and approval, the results of a study conducted by CE and their consultant that assesses the feasibility of constructing a slurry wall and a hydraulic gradient control system at the Karn Disposal Area. If the study confirms that a slurry wall and hydraulic gradient control system are suitable for construction, and if these or other control systems, singly or in combination, provide the most cost-effective alternative for assuring that Part 31 performance criteria are met, then on or before May 1, 2011, CE shall submit for DEQ, WHMD review and approval, detailed engineering plans and a schedule for construction of a slurry wall system or comparable control system that assures compliance at the Karn Disposal Area ("Karn Slurry Wall System Plan and Schedule.") The Karn Slurry Wall System Plan and Schedule shall

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propose construction to begin on or before June 30, 2012, and to be completed on or before October 15, 2014 (license expiration), and to be on schedule to be certified by a professional engineer licensed in the state of Michigan on or before December 31, 2014. If the study determines that the slurry wall and hydraulic gradient control system are not suitable or adequate controls for the Karn Disposal Area, or if there are more cost-effective methods to ensure compliance, then CE shall propose a comparable control system that ensures compliance for DEQ, WHMD, review and approval in accordance with the schedule set forth herein.

An Interim Karn Disposal Area HMP Compliance Monitoring Plan is needed at the Karn Disposal Area for the current situation until a slurry wall or equivalent control system is installed. The Interim HMP shall take effect on or before January 1, 2010, and shall be modified again to take effect upon completion of the Karn slurry wall or comparable control system. The modified HMP shall evaluate the system's performance and determine whether the wall or system performs as designed.

- d. On or before December 31, 2011, CE shall submit to the DEQ, WHMD, for review and approval, a revised closure plan for the Karn Disposal Area, "Karn Revised Closure Plan." The Karn Revised Closure Plan shall include a description of any modifications or improvements that are related to and necessitated by the construction of structures or utilities on the Karn Disposal Area property. The Closure Plan shall be subject to change if required or necessitated by a third power plant construction planned on or near the site, or as otherwise agreed by CE and the DEQ. The Closure Plan shall include evaluations of the potential benefits of improving the Final Cover design to an impermeable cover over the ash landfill cells, to reduce precipitation infiltration, and pollutant source minimization and migration to leachates, groundwaters, and surface waters.
 - e. It is agreed and understood that if monitoring data exceed applicable compliance criteria, then the DEQ may require further assessments, evaluations, controls, or remedial plans to be developed and implemented.
 - f. On or before December 31, 2009, CE shall submit for review and acceptance, a structural analysis of the dike stability and toe slope stability for the landfill's external dikes, including consideration of potential slurry wall placement(s) within the permitted solid waste Karn Disposal Area. This analysis shall consider the permitted future maximum waste heights, a reasonable estimate of the maximum potential hydrostatic head within the landfills, predicted low water levels for the Saginaw River and Saginaw Bay potential influence of erosional effects, improvements provided by riprap and other engineering armoring, and any other significant factors. These factors shall be used in the analysis to determine if strength of the existing or future dikes and slopes will provide sufficient stability for the worst-case scenario with sufficient factors of safety. The acceptance by the DEQ of the structural analysis of the dike stability and toe slope stability shall not constitute an approval of such and shall not be construed to mean that the DEQ concurs with any of the conclusions, methods, or statements in the structural analysis or warrants that the structural analysis comports with the law.
21. **TERM:** This license shall remain in effect until its expiration date, unless revoked or continued in effect, as provided by, the Administrative Procedures Act, 1969 PA 306, as amended, or unless superseded by the issuance of a subsequent license.

END OF LICENSE

Attachment A

