Hayward Landfill
Volume II of II

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# *Environmental Contamination Assessment Report*

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Hayward, Wisconsin

SEH No. HAYWA9503.00

August 1995

# Appendix A

## Correspondence

A1 Closure Plan Modification
A2 Revised Work Plan
A3 Wisconsin State Historical Society Letter
A4 Bureau of Endangered Resources Letter

WISCONSIN
DEPT. OF NATURAL RESOURCES

**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

NORTHWEST DISTRICT HEADQUARTERS
P.O. Box 309
Hwy 70 W & First Street
Spooner, Wisconsin 54801
TELEPHONE 715-635-2101
TELEFAX 715-635-4105

February 10, 1994

File Ref. 4410-1
FID #858011880

MAYOR LOYAL TOWNE
222 WEST 3RD
HAYWARD WI 54843

Subject: Closure Plan Modification in Response to Exceedances of Groundwater Standards at the City of Hayward Landfill - License #01751

Dear Mayor Towne:

We are modifying the Closure Plan approval for your landfill. The major action we are requiring at this time is an investigation of possible groundwater contamination at the landfill.

We are requiring the investigation because routine sampling results have shown exceedances of the state's groundwater standards. Also, constituents of landfill leachate have been detected in downgradient private water supply wells. After we review the findings of the investigation, we will determine how significant those sampling results are and what, if anything, should be done to correct any problems found.

The plan approval modification is attached. You should attach this letter and the conditional modification directly to your previous closure plan approval.

The rest of this letter will explain why we are asking for the investigation, describe some of the important conditions of the approval and respond to any comments you may have shared with us after you reviewed the draft of this letter and the attached approval.

Response to Exceedances

Groundwater sampling results for your site indicate that groundwater quality adjacent to the landfill has been impacted. Wisconsin's groundwater law (Chapter 160, Stats., and Ch. NR 140, Wis. Adm. Code) requires that we take certain actions when there is evidence that a landfill is contaminating groundwater quality.

Of the possible responses listed in Table 5 of s. NR 140.24(4), Wis. Adm. Code, we are requiring that you:

1. Investigate the extent of groundwater contamination.

After you investigate the groundwater contamination, we may require other responses listed in

Table 5 of NR 140, such as changing the design or construction of your facility, or taking remedial action to renovate or restore groundwater quality.

The next section of this letter will describe the groundwater investigation in general terms. The attached conditions of approval describe each of the responses in detail and how they relate to each other.

Investigation of groundwater contamination

**Work Plan** You must prepare and submit a "Work Plan(s)", which summarizes currently available information about groundwater quality and proposes further investigations as necessary. See Attachment A for a general description of the Work Plan. The report must address the items listed in the conditions of this approval, which include the general items listed on Attachment A and some site-specific issues, such as investigating the depth, extent and chemical composition of leachate at the base of the landfill and determining groundwater quality downgradient of the landfill.

**Investigation** You must implement the approved Work Plan(s) and prepare an "Environmental Contamination Assessment (ECA) Report", which evaluates the degree and extent of contamination and proposes response(s). See Attachment A for a general description of the ECA report. The ECA report must address everything listed in the conditions of the attached plan approval modification and the Work Plan.

Using a phased approach in the investigation, it is expected that a ECA report will be submitted to the Department within 12 months of the date of this approval.

**Implementation** You must implement the response(s) we approve and document construction if necessary. Our approval of the ECA report will specify dates for you to complete the responses and send in the site construction documentation.

**Evaluation** After a specified time (for example, five years), you must submit a report to document how well the remedial action(s) is (are) working toward regaining compliance with the state's groundwater standards and other set goals. Our approval of the ECA report will specify the goals to be met and the content and due date of the evaluation.

This is a complex problem that requires a substantial commitment on your part. We appreciate your past cooperation in dealing with the landfill and look forward to your continued cooperation in this investigation. Please refer to the conditions of the attached approval for the details of what we are requiring you to do. For more information on the reporting of groundwater data, please refer to Attachment C.

Please contact Wally Wasko of our Park Falls Area office at (715) 762-3204 or Hydrogeologist Jamie Dunn in Spooner at (715) 635-4049 if you have any questions regarding this letter or the attached approval.

Sincerely,

Gary LeRoy

Gary LeRoy
Northwest District
Solid and Hazardous Waste Management Supervisor

Attach: Conditional Approval
Attachment A
Attachment B
Attachment C
Blank forms
NR 140 Fact Sheet

cc: Lakshmi Sridharan - SW/3
Wally Wasko, Waste Management Specialist - Park Falls Area
Jamie Dunn - NWD
Jack Connelly - SW/3
Groundwater Monitoring File - SW/3
Glenn Mueller - DNR Park Falls
Nadene Cable - DNR Spooner

WISCONSIN
DEPT. OF NATURAL RESOURCES

**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

**PARK FALLS AREA HEADQUARTERS**
**P.O. Box 220**
**875 South Fourth Avenue**
**Park Falls, Wisconsin 54552**
**TELEPHONE 715-762-3204**
**TELEFAX 715-762-4348**

February 10, 1994

FID 858011880
SW Corr

Mr. Loyal Towne, Mayor
City of Hayward
222 West 3rd
Hayward, WI 54843

Subject: Plan Modification - City of Hayward Landfill - License #01751

Dear Mayor Towne:

We have received your letter, dated January 14, 1994, with comments by the City regarding the draft copy of closure plan modification for the City of Hayward landfill, license #1751, which was presented to the City for review under cover letter dated November 8, 1994. The initial 30 day response period was extended by the Department to January 18, 1994 per request by the City in letter dated December 14, 1994. This was allowed to provide the City's consultant(s) additional time to review the file information prior to formulating a response.

We have reviewed and considered the areas of concern raised in your letter. Many of the same issues were brought up and discussed in earlier meetings at Hayward. Most recently, on January 5, 1994, at which time we felt a level of understanding and clarification of issues was reached. The following comments are provided addressing your concerns as enumerated in your letter of January 14 and also reiterating our position regarding the subject plan modification.

1. The information gathered by the City and the Department documents groundwater contamination at the City of Hayward landfill. Both organic and inorganic parameters analyzed for in groundwater support this statement.

   The groundwater flow direction at the landfill has also been documented to be to the south, toward the Namekagon River. This is supported by groundwater elevation data from site monitoring wells. The exact degree and extent of contamination, and fate of contaminants from the landfill can not be determined from the current monitoring system.

   By looking at the groundwater flow direction and the concentrations of contaminants in the monitoring wells, it is the Department's position that the landfill is the source of contamination documented in the monitoring wells.

As we stated in the January 5, 1994 meeting with the City of Hayward, the Department will permit a phased approach to the environmental contamination assessment (ECA). The preliminary phase would consist of some groundwater quality analysis and groundwater elevation data collection from the current groundwater monitoring system, area private wells and temporary sampling points as approved by the Department. It is the Department's position that this preliminary phase can be finished within six (6) months of the approval and the report on the results of this preliminary phase will include the work plan for the second phase of the ECA.

2. Again, as stated by the Department in the January 5 meeting with the City, a phased approach to preparation of the ECA is acceptable to the Department as outlined above. As for the City's comment to the Department that "Claims made by the DNR that the landfill is solely responsible for the potential impacts of water supply wells "downgradient" from the closed landfill..." is not true. We have repeatedly, in meetings with the City, stated that the information gathered from the groundwater monitoring system at the landfill shows that the landfill is a source of groundwater contamination which exceeds groundwater quality standards. These NR 140 groundwater quality exceedances in themselves require the City to conduct an ECA of the landfill. These exceedances were also the impetus for the Department to conduct private water supply well sampling and analysis in the documented direction of groundwater flow (downgradient) from the landfill. A number of wells do show detectable levels of the same contaminants as were detected in the landfill wells. Due to this fact, we are requiring that the ECA for the landfill also encompass those wells unless it is shown that the landfill is not a source of the contamination.

3. The Department feels that the data collected at and near the landfill defines the landfill as a site which is a potential threat to the environment and public health. Again, you are reminded of documented exceedances to groundwater quality standards at the landfill sampling wells. The phased approach to the ECA is to enable the City to collect some preliminary information to help with the final placement of monitoring points. The flexibility provided by the phased approach may afford some measure of efficiency in preparing the ECA and determining the extent of contamination.

4. In reference to your comment "It may be worth while to assess the DMZ..." The definition and use of the DMZ is outlined in NR 140.22. In respect to the Hayward landfill, the DMZ is 300 feet from the fill area or the property boundary; whichever is closer.

5. As stated earlier, a phased approach is acceptable to the Department.

6. The Department feels that a phased approach can be used in preparation of the ECA report. As such, this language will not be inserted, rather language will be inserted that will reflect the use of a phased approach to the ECA.

7. I believe that you are referring to Section 5b instead of 5a under Findings of Fact. This is based on our file information and we feel that the finding is a factual statement as presented.

8. The closure plan modification already states that the Department can modify the closure plan modification at any time if conditions warrant the change. If information is gathered during the first phase of the ECA that would warrant a substantial change, then the Department would modify the plan modification conditions to reflect that information.

9. Using a phased approach in the investigation, we feel it is reasonable to expect a ECA report within 12 months of the date of this approval and this change is reflected in the plan modification.

10. Wording is changed to include "if necessary" regarding any needed construction.

11, 12, & 13. It has been determined that the private wells of concern are in a downgradient direction. Looking at the local and regional geology, it is clear that the Namekagon River is a discharge area for groundwater. The private wells of concern are located between this discharge area and the landfill.

14. The Findings of Fact are based on the evidence gathered to date. The ground water monitoring system at the landfill does clearly show that groundwater flow at the landfill is to the south. It does show that groundwater contamination at the landfill is attributable to the landfill. This information will be used in the Findings of Fact.

15. Changes have been made to reflect changes and additions as proposed.

16. The first phase of the referenced work plan shall be submitted within 90 days of the date of the attached plan modification. It is expected that the second phase of the ECA work plan will be submitted to the Department within six (6) months of the plan modification date along with a report on the preliminary phase of the investigation.

17. Second Condition #6 is corrected to Condition #7.

18. Wording is changed to "a minimum of 8½ x 11 in paper" to allow flexibility in plan sheet size.

This closure plan modification does not in any way preclude the City of Hayward from pursuing any other potentially responsible parties, where applicable, in addressing the requirements of the attached closure plan modification.

Relevant changes to the attached plan modification have been incorporated as applicable per items and areas addressed in this letter and is issued in final form effective as dated therein.

Should you have any further questions, or require clarification on any area(s) of the closure plan modification, please call me at the number listed above or contact Jamie Dunn, Northwest District Hydrogeologist at (715) 635-4049. We look forward to working with the City in a cooperative manner as you move ahead toward addressing the landfill problems.

Sincerely,

Wally Wasko

Wally Wasko
Waste Management Specialist

WW/jjf

cc: Lakshimi Sridharan - SW/3
Gary LeRoy - DNR Spooner
Jamie Dunn - DNR Spooner
Jack Connelly - SW/3
Glenn Mueller - DNR Park Falls
Nadine Cable - DNR Spooner
Howard Hansen, City Attorney - City Hall, Hayward, WI 54843
Glenn Bruxvoort - SEH, 421 Frenette Drive, Chippewa Falls, WI 54729

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

# CONDITIONAL APPROVAL
# MODIFYING THE CLOSURE PLAN
# FOR THE CITY OF HAYWARD LANDFILL
# LANDFILL #1751, FID 858011880

## FINDING OF FACT

The Department finds that:

1. The City of Hayward owns and formerly operated a municipal solid waste disposal facility located in the NW¼, SW¼, Section 28, T41N, R9W, City of Hayward, Sawyer County, Wisconsin.

2. The Department has issued the license number 01751 to the landfill. The landfill operated for approximately 20 years, beginning in the mid 1960's as an open dump. It was operated as a "trench and fill" system for approximately the last ten years of use. The landfill ceased to accept waste and was closed in 1985. Approximately 9.1 acres have been utilized for waste disposal.

3. A Conditional Closure Plan approval for the facility was issued by the Department on March 28, 1985. The landfill did not have a plan of operation approval under s. 144.44(3) Stats., and is considered to be a non-approved facility under s. 144.44(1)(c) Stats.

4. A Facility Construction Documentation Approval and Closure Plan Modification, dated October 10, 1988, was issued by the Department for the closed facility.

5. The Department considered the following documents regarding groundwater quality exceedances of the City of Hayward landfill.

   a. Groundwater quality data for the City of Hayward landfill in Department files including the Turn Around Documents (TADs) and results of VOC analysis conducted in 1988 and 1993.

   b. Water quality data in Department files from private water supply wells, downgradient and in close proximity to the landfill, that have documented detections of volatile organic compounds (VOCs).

6. The Department has evaluated sampling results that exceed the groundwater standards listed in Chapter NR 140, Wis. Adm. Code.

7. The Department does not have enough information to evaluate all of the factors listed in s. NR 140.24(1)(c), 1 through 10, Wis. Adm. Code.

8. The Department considers the following facts to be significant to its decision to modify the closure plan, as set forth below.

   a. The City of Hayward landfill is an unlined, natural attenuation facility which accepted municipal, commercial and industrial waste.

   b. The City of Hayward landfill is located in an area of unconsolidated glacial outwash underlain by Cambrian age sandstone formations and Precambrian crystalline rock.

   c. The landfill is located in an area with a high water table with very little separation between the base of refuse and the groundwater surface. Department file information indicates that waste may have in fact extended into the saturated zone during trench and fill operation.

   d. Water level readings from site wells show groundwater movement beneath the site is toward the south-southwest discharging to the Namekagon River located approximately 0.3 miles downgradient of the landfill. Some local shallow groundwater flow may also be discharging to the wetland areas along the western margin of the site.

   e. Monitoring wells MW-1, MW-2, MW-4 and MW-5 are located directly downgradient form the filled portion of the site and are within the Design Management Zone (DMZ). Preventive Action Limits (PAL) have occurred at these wells. In addition, VOC's have been detected in monitoring wells MW-1, MW-2 and MW-4 from sample analysis conducted in 1988 and 1993. Specific VOC's detected are as follows: 1,2 Dichlorethylene, Cis; Chlorethane; 1,4-Dichlorobenzene; 1,1-Dichloroethane; Vinyl Chloride; Ethylbenzene; Toluene; Xylene; Benzene; and Freon 11. NR 140, Public Health and Groundwater Standard, PAL exceedances for 1,2 Dichloroethylene, Cis; Benzene and Vinyl Chloride were noted in monitoring well MW-4 and PAL exceedances for Vinyl Chloride were also found in monitoring wells MW-1 and MW-2.

   f. Private water supply wells exist within 1200 feet downgradient of the site.

   g. VOC's have been detected in several of the downgradient private wells from sampling conducted in 1990 and 1993; specifically 1,2 Dichloroethylene, Cis; Chloroethane; Chloroform; Methylene Chloride; 1,4 Dichlorobenze and Freon 12.

   h. The Department has designated a special well casing area which encompasses a parcel of land south and west of the landfill extending to the Namekagon River. Since 1991, the Department has recommended a 100 foot minimum casing depth for all new wells based on evidence of landfill leachate influence on private wells in this area. The Department is now considering a more stringent requirement for this same area.

9. The special conditions set forth below are needed to ensure that the landfill does not pose a substantial hazard to the environment, public health or welfare.

10. The special conditions set forth below are needed to specifically:

    a. Determine the degree and extent of possible groundwater contamination.

    b. Minimize the concentration of the substances in groundwater at the point of standards applications where technically and economically feasible.

    c. Regain and maintain compliance with Preventive Action Limits.

    d. Ensure that in the future the enforcement standards are not attained or exceeded at the point of standards application.

## CONCLUSIONS OF LAW

The Department concludes that:

1. The Department has authority to impose monitoring requirements under s.s. 144.435 and 144.44 Stats. and ch. NR 508, Wis. Adm. Code, for any non-approved facility as defined under s. 144.441 (1) (c), Stats.

2. The Department has authority under s. 144.44 and 144.435, Stats. and NR 514.07, Wis. Adm. Code, to modify the approved Closure Plan with special conditions if the conditions are needed to ensure compliance with state statutes and administrative codes.

3. The Department has authority to require a response under s. 160.23, Stats., and s. NR 140.24(4), Wis. Adm. Code, if a preventive action limit for a substance of health or welfare concern has been attained or exceeded at a point of standards application.

4. The Department has authority pursuant to s. NR 140.24(1), Wis. Adm. Code, to require an owner or operator to evaluate impacts to the groundwater and to submit a report by a specific deadline describing the degree and extent of groundwater contamination, if a preventive action limit has been attained or exceeded at a point of standards application.

5. In accordance with the foregoing, the Department has authority under s. 144.44, ss. 160.23 and 160.25, Stats., and ss. NR 140.24 and 140.26, Wis. Adm. Code, and Ch. NR 500-520, Wis. Adm. Code, to issue the following conditional plan modification, which requires responses to exceedances of groundwater standards and submission of a report describing the degree and extent of groundwater contamination.

## CONDITIONAL APPROVAL

The Department hereby modifies the closure plan for the City of Hayward landfill, by adding the following conditions:

Investigating the Extent of Groundwater Contamination

1. The City of Hayward shall prepare and submit an Environmental Contamination Assessment (ECA) report to the Department following the approved Work Plan(s), which are required in condition 2, below. The Department will establish the due date and final contents of this report in its approval of the work plan(s). The Department recognizes that a phased approach is acceptable for completing the items required under items 1 through 7 of the Conditions of Approval provided certain time frames are met. It is understood that work plans must be submitted and approved that covers each point outlined. Variances to specific points may be granted by the Department if initial investigations determine that the original conditions of approval are no longer appropriate.

   This report must contain the following, subject to review of the work plan:

   a. A summary of background information about the site as specified in ss. NR 508.20(1) through (4), Wis. Adm. Code.

   b. Results of the groundwater investigation (as approved in the work plan(s) and data previously gathered at the landfill, presented according to ss. NR 508.20(6) through (10), Wis. Adm. Code.

   c. A separate topographic plan sheet meeting the requirements of s. NR 508.20(6)(a), Wis. Adm. Code, except that the scale can have a minimum 1"=500', and showing:

      i. All public and private wells within one mile of the landfill. Name of owners, addresses and phone numbers should be included.

      ii. All groundwater monitoring wells (active and abandoned).

      iii. All known possible sources of groundwater contamination, such as landfilled areas, spills, areas where spills were likely to occur, areas of landspreading, salt storage, wastewater discharge points, storm and sanitary sewers, septic systems, channelized or unchannelized surface water flow, areas of past or present leachate storage.

   d. If necessary, a proposal for additional investigations before final assessment and selection of responses can be made.

   e. An evaluation of the degree and extent of groundwater contamination at the site, addressing in detail the ten points in s. NR 140.24(1)(c), Wis. Adm. Code, and

discussing the nature,
persistence and likely fate of any contaminants and the existing or potential environmental and health effects of the contamination.

f. A proposal for potential responses which are technically feasible for renovating or restoring groundwater and surface water quality. Some of the responses you may consider are: installing cut-off walls; installing leachate extraction wells; installing groundwater extraction wells; improving the cap's slope or thickness; treatment options for extracted liquids; and other responses which are available.

g. Selection of a preferred alternative response or responses which will result in compliance with the state's groundwater standards (NR 140) and other objectives. Include justification of why responses other than those proposed are not technically feasible to implement.

h. Preliminary plans and specifications for the response, including estimated costs for construction, operation and maintenance over the predicted life of the response.

i. A proposal for long-term environmental monitoring which would evaluate the effects of any chosen response and the continued performance of the facility.

j. Justification of any requests for exemptions to the NR 140 Preventive Action Limits at any monitoring well at the facility.

2. Within 90 days of this conditional approval, The City of Hayward shall prepare and submit the preliminary or first phase of the Work Plan for assessing the groundwater quality near the City of Hayward landfill. It is expected that a subsequent phase of the ECA work plan can be submitted for Department review within 6 months of the date of this approval. The work plan(s) shall contain the following:

a. A brief summary of any previous investigations of the landfill area, as these relate to each of the items listed in points 1. through 9. in s. NR 140.24(1)(c), Wis. Adm. Code.

b. An evaluation of the current condition of all existing monitoring wells and a proposal to repair or replace any that are damaged or missing.

c. A proposal to evaluate the degree and extent of groundwater contamination, by investigating the site and producing a report that fully addresses the ten points of s. NR 140.24(1)(c), Wis. Adm. Code. Refer to s. NR 508.20(5), Wis. Adm. Code, for the level of geologic and hydrogeologic investigation we expect. Previous investigations and historic groundwater data may be included in this investigation. More wells and extra sampling may be necessary to address the concerns in Ch. NR 140, Wis. Adm. Code.

d. Proposals for investigations designed to address the other items listed in the description of the ECA report, above.

e. A proposed project schedule with specific dates and timelines.

Special Sampling

3. The City of Hayward shall collect and analyze two rounds of special samples from all points listed below under a.i through a.iii. The special samples are in addition to the quarterly samples, but may be collected at the same time as quarterly samples.

   a. Samples shall be taken from the following wells:

      i. All site monitoring wells identified as MW-1 through MW-5; numbers 801 through 805 respectively.

      ii. All water supply wells located within 1200 feet of the limits of fill of the landfill. This shall include all wells associated with the businesses located along the east side of the landfill north of Highway 63. Submit a list of all owners, their addresses and phone numbers.

      iii. All private wells which lie beyond 1200 feet downgradient from the landfill to the Namekagon River to include those identified as follows: (1) Warren Ogren home, Route 8, Hayward, WI (2) Warren Ogren (rental, Nancy Ogren) Route 8, Hayward, WI (3) James Card (seasonal residence) 202 12th Ave. E., Superior, WI (4) Thomas Karas (home) Rt. 8, Box 82608, Hayward, WI (5) Warren Ogren (rental, Stichmann) Route 8, Hayward, WI (6) Warren Ogren's (old shop) Route 8, Box 8258, Hayward, WI (7) Warren Ogren's (new shop, Beehive Botanica) Linda Graham, Route 8, Box 8258, Hayward, WI.

   b. The special samples shall be taken quarterly and completed within 6 months of the date of this approval.

   c. The special samples shall be analyzed for the following parameters:

      i. The public health and welfare parameters listed in Table 2 of s. NR 508.14, Wis. Adm. Code. All metals are to be measured as dissolved constituents.

      ii. Volatile organic compounds (VOCs) should be analyzed using EPA Solid Waste Methods 8260 or 8021. These methods are described in EPA document SW 846, "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised December 1987 and November 1990.

      (Note: for private drinking water samples, analyze for VOCs using EPA

Methods 8021, 8260, 502.2 or 524.2.

d. VOC samples from private drinking water wells shall be extracted by purge and trap using EPA method 5030.

e. The special sampling efforts shall also include a trip blank, a bailer blank and a duplicate sample for every VOC sampling round. These samples shall be sampled, analyzed and reported the same as the VOC samples.

f. The special sampling results shall be submitted on forms provided by the Department within 60 days of sampling. Use form number 4400-107A and 107B (dated 7-92) and their cover sheet 4400-107, dated 3-92. The results may also be submitted on 3.5" or 5.25" computer diskette using a format acceptable to the Department. Contact Dennis Gilbertson at (608) 267-7554 for information on electronic transfer of data.

g. The special sampling results shall be included in an appendix of the ECA report.

4. The City of Hayward shall evaluate the integrity of all monitoring wells constructed to evaluate the existing site. Any monitoring wells that are found to be damaged shall be repaired or replaced. The inspection of the monitoring wells shall, at a minimum, include the following items:

a. Protective casings
b. Caps
c. Locks
d. Permanent legible labels
e. Surface seals
f. Ease of inserting/removing bailer
g. Degree of silting at the bottom each well
h. Immobility of the PVC pipes
i. Proximity to drainage ditches

Submit this inventory and a proposal to repair or replace wells as necessary with the work plan required in condition 2, above.

5. The City of Hayward shall prepare and submit to the Department a Sampling Plan (a description of the methods used to obtain, preserve, and analyze the samples). The Sampling Plan shall address the items in s. NR 508.10(5), Wis. Adm. Code. (See also pages 52-55 of the Department's Groundwater Sampling Procedures Guidelines).

Submit this sampling plan with the work plan required in condition 2, above.

6. All new and replaced monitoring wells shall be designed, installed, developed, sampled, and documented according to chs. NR 508 and NR 141, Wis Adm. Code.

The documentation for the site shall include:

- A Groundwater Monitoring Well Information Form 4400-89 (WIF, updated 1-90)

The documentation of each well shall include:

- A Monitoring Well Construction Form 4400-113A (updated 4-90)
- A Monitoring Well Development Form 4400-113B (updated 4-90)
- A Soil Boring Log Information Form 4400-122 (updated 7-91)

The Documentation of any abandoned monitoring wells or boreholes shall include:

- A Soil Boring Log Information Form 4400-122 (updated 7-91)
- A Well/Drillhole/Borehole Abandonment Form 3300-5B (updated 8-89)

Submit the documentation of well installation, soil samples, well development, etc., in the environmental contamination assessment report required in condition 1, above.

7. The City of Hayward shall submit a plan view of the landfill drawn on a minimum of 8½ x 11 inch paper. The plan view shall be drawn to scale and contain, on a local grid system, the limits of fill, property boundaries, locations of all monitoring wells, and the Design Management Zone (DMZ).

   Submit this document in the Work Plan required above.

The Department reserves the right to require either the submittal of additional information or to further modify this approval at any time if conditions warrant further modifications. Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

## NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

This notice is provided pursuant to section 227.48(2), Stats.

Dated: 2/18/94

DEPARTMENT OF NATURAL RESOURCES
For the Secretary

Gary LeRoy

Gary LeRoy
Solid and Hazardous Waste Supervisor
Northwest District

Jamie Dunn
Hydrogeologist
Northwest District

Wally Wasko

Wally Wasko
Waste Management Specialist
Park Falls Area

Attach: See cover letter

cc: See cover letter

ATTACHMENT A

## WORK PLAN

The Work Plan(s) must present how you intend to investigate the site to address all the items in the ECA report listed below and in the conditions of this approval. In general, it must:

- Summarize background information about the site.
- briefly summarize any previous investigations at the landfill, as these relate to each of the items 1. through 10. in s. NR 140.24(1)(c), Wis. Adm. Code.
- evaluate the current condition of all existing monitoring wells and propose repair or replacement for any that are damaged or missing.
- propose investigations including any new wells or extra sampling. The investigations must address all items in ss. NR 140.24(1)(c)1. through 10., Wis. Adm. Code. and any other items listed in the description of the ECA report, below.
- propose a project schedule with specific dates and timelines.
- propose work necessary to address other site-specific requirements (see cover letter and conditions).

The conditions of the attached approval list what must be addressed in the Work Plan(s).

## ECA REPORT

The Environmental Contamination Assessment (ECA) Report must evaluate the degree and extent of groundwater contamination at the site. In general, it must:

- Summarize background information about the site.
- Summarize the results of any special sampling.
- Evaluate groundwater contamination by defining the degree and extent of environmental impact, addressing in detail each item in the ten points in s. NR 140.24(1)(c), Wis. Adm. Code.
- Investigate other site-specific circumstances.
- Discuss potential responses that would be appropriate and technically feasible at the site.
- Select a preferred alternative response which will result in compliance with the state's groundwater standards (NR 140) and other objectives.

The conditions of the attached approval list the requirements for the ECA report at this site.

City of Hayward Landfill Closure Approval Modification

ATTACHMENT B

**Timetable for Required Work**

Within 90 days of receipt of this letter:

- Submit the preliminary or first phase Work Plan for Department review and approval. (See conditional approval).

Within 6 months of the date of this document:

- Perform 2 rounds of special sampling (see condition 3).

Within approximately 12 months of the date of this document:

- Submit Environmental Contamination Assessment (ECA) Report. (See condition 1.)

Within approximately 1-3 years:

- Implement any remedial actions necessary to address problems found including the replacement of any water supply wells impacted above standards set in NR 109 with a safe water supply.
- Submit site construction documentation for the work done. Note: the exact due date will be set in the approval of the ECA report.

Within approximately 5 years:

- Continue routine groundwater monitoring.
- Submit a report documenting how well the remedial actions are working. Note: the exact due date will be set in the approval of the ECA report.

ATTACHMENT C

**Reporting of groundwater data**

You must submit monitoring data to the Department on TurnAround Documents (TADs), on other department forms or on 5 inch floppy disks or 3.5 inch microdiskettes. Please contact Dennis Gilbertson at (608) 267-7554 for more information on submitting data electronically.

You must compare your quarterly groundwater monitoring results against the state's standards for health and welfare parameters (e.g., chloride, iron and others listed in Tables 1 and 2 of NR 140). You must notify us in a letter any time sample values exceed NR 140 groundwater standards and attach two copies of this letter to your quarterly Turn Around Document (TAD). The letter must include a preliminary analysis of the cause and significance of the values that exceed the standards. Periodically, we will check to see that you are reporting them correctly.

The blue fact sheet "Chapter NR 140 Groundwater Quality Requirements," attached, explains the different types of groundwater standards in Wisconsin and how they apply to your landfill. Basically, preventive action limits (PALs) apply at all wells at which groundwater can be monitored, while enforcement standards apply beyond your Design Management Zone (DMZ) as defined in NR 140 and the blue fact sheet.

The DMZ for the City of Hayward landfill is 300 feet from the approved limits of fill or the property boundary, whichever is less. (See s. NR 140.22, p. 688, Table 4, Wis. Adm. Code.) Therefore, the PALs apply at all monitoring wells, while the enforcement standards will apply at wells outside the DMZ including all private water supply wells.

For more information on NR 140, you may refer to the enclosed NR 140 fact sheet or NR 140 itself, which is available from the Department of Administration; Document Sales; P.O. Box 7840; Madison, Wisconsin 53707; (608) 266-3358.

# Chapter NR 140
## Groundwater Quality Requirements

**Bureau of Solid and Hazardous Waste Management**
**Wisconsin Department of Natural Resources**

### What is Chapter NR 140?

Chapter NR 140 is a Wisconsin Administrative Code that regulates groundwater quality in the state. It requires that both landfill owners (or operators) and the Department review groundwater data collected near solid waste facilities. Application of NR 140 has resulted in additional monitoring at many landfills and, in some cases, changing the design, operation or maintenance of facilities.

Chapter NR 140 applies to all facilities, practices, and activities which may affect groundwater quality and which are regulated by the Department of Natural Resources (the Department) under Chapter 144 of the State Statutes.

### When did NR 140 take effect?

Chapter NR 140 took effect on October 1, 1985.

### What is the purpose of NR 140?

Chapter NR 140 has the following specific goals:

1. To establish numerical groundwater quality standards for the state.
2. To specify procedures to determine if a numerical standard has been reached or exceeded.
3. To establish where the standards apply.
4. To specify procedures for evaluating groundwater monitoring data.
5. To specify possible responses the Department may take when a standard has been exceeded.
6. To provide exemptions to the standards under certain circumstances for facilities, practices, and activities regulated by the Department of Natural Resources.

### How does Chapter NR 140 apply to my landfill?

Chapter NR 140 contains numerical groundwater standards for 71 substances of health and welfare concern which may be detected in the groundwater near your landfill. The numerical standards are listed in Tables 1 and 2 of NR 140 and apply to all landfills in the state. Each substance has an "enforcement standard" (ES) and a "preventive action limit" (PAL). The ES is usually the same as the federal drinking water standard (if any). The PAL is lower than the ES for each substance in order to provide early warning of possible groundwater contamination.

Chapter NR 140 also establishes procedures for determining site-specific PALs for "indicator parameters" such as alkalinity, specific conductance, chemical oxygen demand and others (see Table 3 of NR 140). If these parameters are high, this indicates that groundwater may be contaminated by other substances as well. Indicator parameter PALs apply only near the landfill for which they are assigned.

Numerical standards for additional substances will be added to NR 140 in the future.

### Where do the groundwater standards apply?

In general, PALs apply wherever groundwater is monitored. ESs apply only in the following locations:

1. Any water supply well.
2. At or beyond the facility's property boundary.
3. Any point within the facility's property boundary and beyond the three dimensional Design Management Zone (DMZ).

The DMZ is the area within a specified horizontal distance from the waste boundary that extends downward through all saturated geologic formations. The DMZ extends a horizontal distance of 300 feet away from the waste boundary for solid waste landfills that have had feasibility studies approved before October 1, 1985 or were never formally approved. The DMZ extends a horizontal distance of 150 feet for solid waste landfills having feasibility studies approved after October 1, 1985. The DMZ for hazardous waste landfills is the limit of waste filling. If the property boundary is closer than the horizontal distance cited above, the DMZ ends at the property boundary.

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# Groundwater Quality Requirements

**Bureau of Solid and Hazardous Waste Management**
**Wisconsin Department of Natural Resources**

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# A2

## Revised Work Plan

GROWTH
ENVIRONMENTAL SERVICES, Inc.
(Formerly Highland EnviroCorp)

MADISON DISTRICT
44 E. Mifflin Street, Suite 201
Madison, WI 53703
(608) 251-0999
(608) 251-0261 Fax

January 27, 1995

Mr. Wally Wasko
Wisconsin Department of Natural Resources
Park Falls Area Headquarters
P.O. Box 220
Park Falls, WI 54552

**Re: Workplan (Revised) - Hayward Landfill**
**City of Hayward Landfill**
**FID 858022880-SW CORR**

Dear Mr. Wasko:

Enclosed please find the January 27, 1995, revised workplan for the City of Hayward Landfill. GES is recommending that five (5) additional monitoring wells, six (6) shallow piezometers, and six (6) deep piezometers be installed near the landfill and the downgradient private wells. The additional wells will help determine horizontal and vertical groundwater flow patterns and downgradient migration of the groundwater contaminant plume.

After Jamie Dunn and yourself have reviewed the workplan, please contact us, so we may discuss the contents of the workplan.

If you have any questions regarding the workplan or need additional information, please feel free to contact me at (608) 251-0999.

Sincerely,
Growth Environmental Services, Inc.

Joel L. Janssen

Joel L. Janssen
Hydrogeologist

CC: Jamie Dunn, John Metcalf, Howard Hanson, Mayor of Hayward, Amy L. Miller

enclosures

dnr1-27.doc

# WORKPLAN (REVISED)
# CITY OF HAYWARD LANDFILL
January 27, 1995

## SITE BACKGROUND

The City of Hayward Landfill (license #001751) is a former municipal solid waste disposal facility. The landfill is located in the NW1/4 of the SW1/4, Section 28, T41N, R9W, Sawyer County, Hayward, Wisconsin. A site layout map, Figure 1, has been enclosed.

| Responsible Party: | Consultant: |
|---|---|
| City of Hayward<br>222 West 3rd<br>Hayward, WI 54843 | Growth Environmental Services, Inc.<br>44 E. Mifflin St. Suite 201<br>Madison, WI 53703 |

The Hayward Landfill operated for approximately 20 years, beginning in the mid 1960's as an open dump. It was operated as a "trench and fill" system for approximately the last ten years of use. The landfill ceased to accept waste and was closed in 1985. Approximately 9.1 acres have been utilized for waste disposal.

In June, 1994, Growth Environmental Services, Inc. (GES) initiated the first phase of the Environmental Contamination Assessment (ECA) at the City of Hayward Landfill. A preliminary hydrogeologic and subsurface investigation was conducted on June 6-10, 1994 which included twenty four (24) soil borings advanced to a depth of 15 to 31 feet using a Geoprobe. Sixteen (16) groundwater samples were collected at the soil boring locations. Water samples were not collected from soil borings 7, 8, 9, 12, 13, 14, 15, and 16. Five (5) borings were converted into temporary monitoring points, with a 1" PVC screen placed in the boring. Groundwater sampling of the five (5) temporary monitoring points and the five (5) existing monitoring wells at the landfill was also performed on June 6-10, 1994. On August 25, 1994, a "Summary Report - Investigation of the Extent of Groundwater Contamination" was submitted to the WDNR. Additional material, including results of "special" groundwater sampling performed on September 20-21, 1994 was submitted in November, 1994.

The Hayward Landfill is located in an area of unconsolidated glacial outwash underlain by Cambrian Sandstone and Precambrian crystalline rock. The unconsolidated outwash consists of gravelly sand to an approximate depth of 100 feet. The City of Hayward Landfill is located in an area with a high water table; very little separation exists between the base of the refuse and the groundwater surface. WDNR file information indicates that waste may have extended into the saturated zone during trench and fill operations. Groundwater flow at the Hayward Landfill trends south-southwest towards the Namekagon River and towards the wetlands on the western edge of the landfill. The private wells located near the landfill have an average depth of 50 feet except for the new Beehive Botanical well which is 98 feet deep.

## PURPOSE AND SCOPE

In order to monitor and define the vertical and horizontal extent of groundwater contamination and develop corrective action recommendations for site restoration in accordance with WDNR guidelines, GES recommends that additional subsurface investigations be performed at the site. The results of this investigation will be incorporated into an Environmental Contamination Assessment (ECA) Report.

GES recommends the installation of five (5) monitoring wells, six (6) shallow piezometers, and six (6) deep piezometers near the landfill and the downgradient private wells in order to better define the vertical and lateral extent of groundwater contamination. The monitoring wells and shallow piezometers will be installed with a truck mounted drill rig and 4.25 inch I.D. hollow stem augers (HSA). The deep piezometers will be installed using rotosonic drilling or casing and hammer drilling. The rotosonic drilling procedure consists of vibrating an 8 inch temporary casing into the ground, while a 6 inch inside core barrel removes soil samples in 10 foot intervals. The 6 inch inside core barrel is advanced first and then the 8 inch temporary casing is advanced, surrounding the inside casing. Based on stratigraphy at the site, rotosonic drilling will be more efficient than the casing and hammer method.

All wells will be constructed with 2" I.D., schedule 40 PVC piping. Well screens will be factory cut with 0.010 inch slots. The wells will be constructed and developed in accordance with the requirements outlined in NR 508.05 and NR 141. The procedures that will be used to develop the wells can be found in the attached, "Sampling Plan for the City of Hayward Landfill". Equipment decontamination procedures will be followed to minimize the possibility of cross-contamination. All drilling equipment will be decontaminated with a high pressure steam cleaning system prior to and after each well has been installed.

Monitoring wells (MW) will be drilled to approximately 30 feet below ground level (BGL) and will have 10 foot PVC screens. Monitoring well depths will be based on the depth to groundwater at each location. Shallow piezometers (PZS) will be drilled to approximately 45 feet BGL and will have 5 foot PVC screens. These piezometers will be used to monitor groundwater quality within the private water supply and any potential for vertical groundwater flow. Deep piezometers (PZD) will be drilled to approximately 100 feet BGL and will have 5 foot PVC screens. Based on stratigraphy, these piezometers may be extended to the sandstone surface, approximately 80-100 feet BGL. These piezometers will be used to monitor groundwater quality in relation to the new Beehive Botanical well (PW-1), contaminant migration along the sandstone boundary, and the vertical flow characteristics of the sand and gravel aquifer.

One PZS and one PZD will be installed next to MW-1, area #1. One MW, one PZS, and one PZD will be installed on the western edge of the landfill, area #6. According to Jamie Dunn (WDNR), these wells (#6) will be considered as point of standards application wells. One MW, one PZS, and one PZD will be installed downgradient from the landfill, area #7. One MW, one PZS, and one PZD will be installed south of Hwy 63 and southwest of the Asp residence (PW-8), area #8. One MW, one PZS, and one PZD will be installed south of Hwy 63 and southwest of the new Beehive Botanical shop (PW-1), area #9. One MW, one PZS, and one PZD will be installed south of Hwy 63 and southeast of the old Beehive Botanical shop (PW-2), area #10. Please refer to Figure 2, Proposed Well Locations, for detailed locations.

A minimum of one (1) soil sample will be collected in the saturated zone from each area, #1, #6, #7, #8, #9, and #10 and analyzed for grain size distribution according to NR 512.11 (4). It is anticipated that the soil samples will be collected where the well screens will be placed. Additional samples from each location may be analyzed for grain size distribution based on soil characteristics. It is estimated that seventeen (17) samples will be analyzed for grain size distribution.

A minimum of two (2) soil borings will be conducted within the boundaries of the former landfill area. These borings will assist in determining if the current clay cap meets WDNR guidelines. One (1) soil sample from each boring will be analyzed for grain size distribution. The current depth of the clay cap will also be determined. These borings will be advanced until the bottom of the waste has been encountered. Data regarding the depth of the waste and depth to groundwater in these borings will help determine if the waste and groundwater are in direct contact. Level C personal protection is recommended while drilling these borings within the limits of the waste. In order to determine if half face respirators will be necessary, air monitoring will be conducted during drilling operations.

For all soil borings, soil samples will be collected continuously inside the drill rod or with a split-spoon, based on the drilling method used. Soil samples will be described in the field by a geologist for color, texture, odor, moisture, organic content, and grain size distribution. This information will be recorded on WDNR soil boring logs (4400-122) in the field. Well construction activities will be recorded on WDNR monitoring well construction forms (4400-113) in the field. All new monitoring wells and piezometers will be surveyed horizontally and vertically to mean sea level (MSL).

In-field hydraulic conductivity tests will be conducted on the proposed monitoring wells and piezometers according to NR 512.11 (4).

Two (2) rounds of groundwater quality sampling will be performed on all newly installed monitoring wells and piezometers and the five (5) current monitoring wells. Analytical methods will follow the same procedures used in previous groundwater monitoring events. A WDNR certified laboratory will analyze all groundwater samples collected. Parameters to be analyzed will consist of the following:

- Volatile Organic Compounds (VOC), method 8260

- Public health and welfare parameters listed in Table 2 of NR 508.14 and indicator parameters listed in Table 1 of NR 508.10:

  Dissolved Metals
  - Arsenic
  - Barium
  - Cadmium
  - Chromium
  - Copper
  - Lead
  - Manganese
  - Mercury
  - Selenium
  - Silver
  - Zinc

  - Fluoride
  - Nitrite/Nitrate
  - Sulfate
  - TDS

  - Total Alkalinity
  - Total Hardness
  - Dissolved Iron
  - Chloride
  - COD

The following field measurements will be collected from each monitoring well and piezometer: temperature, conductivity, pH, odor, turbidity, and groundwater elevation.

The procedures that will be used to collect groundwater data and groundwater samples can be found in the attached, "Sampling Plan for the City of Hayward Landfill".

All current wells located at the City of Hayward Landfill require J-plugs, which do not allow surface water or obstructions to enter the well. The wells are currently being sealed by PVC caps.

## REPORT PREPARATION

The Environmental Contamination Assessment (ECA) Report will be prepared in accordance with the "Closure Plan Modification", NR 508.20, NR 716.15 and other applicable WDNR guidelines. The ECA Report will then be submitted to the WDNR for review. The ECA Report will contain the following:

- Summary of background information about the site, including a legal description, history of the facility, and public and private wells within one mile of the landfill.
- Summary of land use information within one mile of the landfill, including present and former land uses at the landfill and the surrounding area, identification and location of adjacent landowners, and identification of critical habitats and recreational unique areas.
- Summary of the regional setting, including topography, hydrology, hydrogeology, bedrock geology, and groundwater and surface water quality.
- Results of field investigations which define the topography, soil characteristics, site geology, bedrock geology, site hydrogeology, vertical and horizontal groundwater directions, groundwater flow velocities and the degree and extent of groundwater contamination, with all raw data being presented in the report appendices.
- The following site related maps: topographic map, geologic cross-sections, water table contour maps, and iso-concentration maps.
- A regional water budget for the area near the landfill based on available data from local research stations and published literature.
- An evaluation of the results from subsurface investigations, water quality sampling, and regional geotechnical information.
- Summary of the results of any special sampling.
- Evaluation of groundwater contamination by defining the degree and extent of environmental impact, addressing each item in the ten points in NR 140.24(1)(c). The following information will be included within the ECA Report.

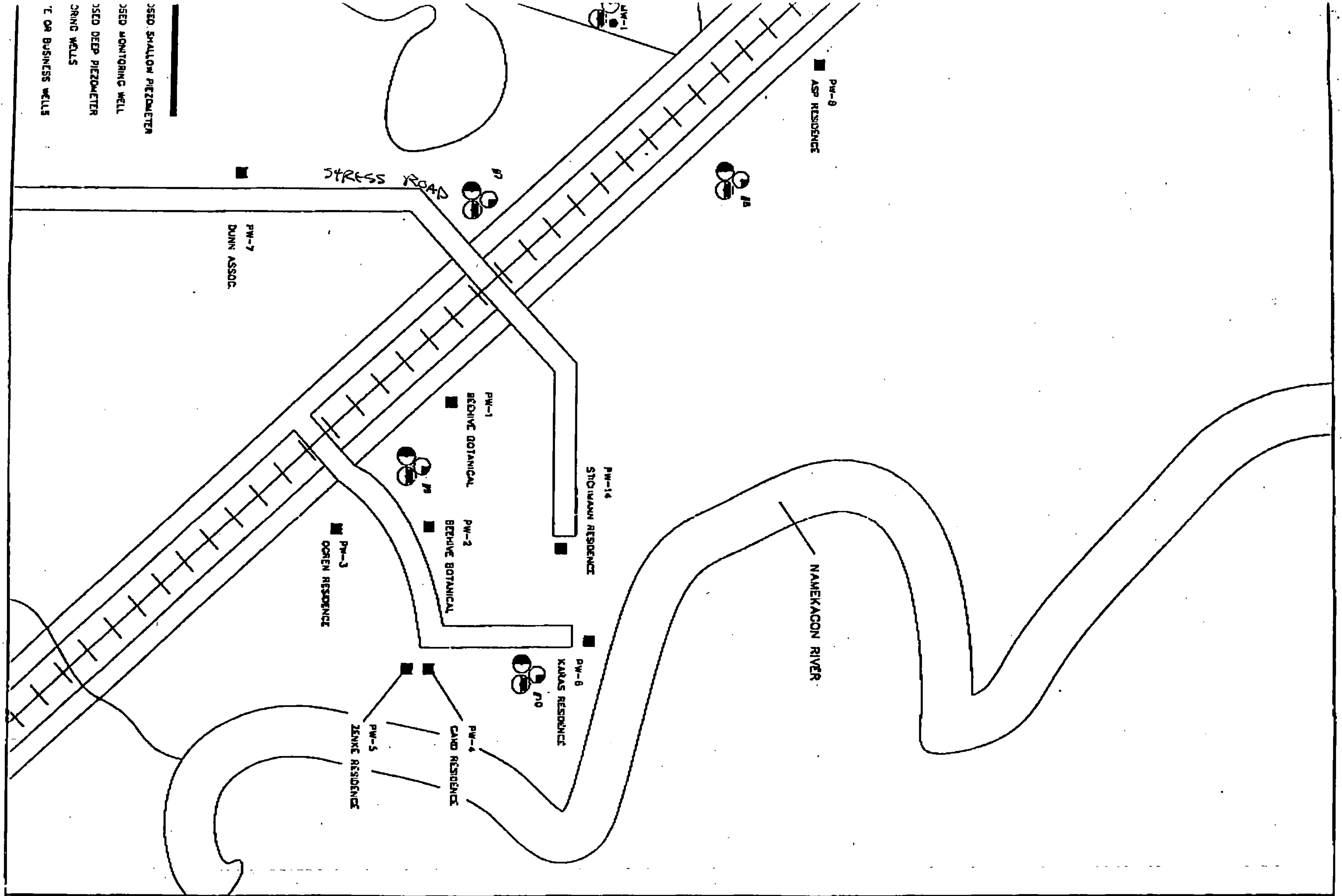
- Background water quality data from area wells.
- QA/QC procedures and sampling procedures.
- A general overview of the environmental and health effects of the contaminants.
- Probability that a groundwater standard may be attained or exceeded outside the design management zone (DMZ).
- Location of all monitoring points in relation to the DMZ and the facility.
- Location and history of other sources in the area that may have contributed to groundwater contamination downgradient of the landfill.
- Extent of groundwater contamination evaluated in three dimensions and its effect on water supply sources.
- A brief discussion of potential remedial actions that would be appropriate and technically feasible at the site.
- Recommendation of a preferred alternative response which could bring the site into compliance with WDNR groundwater quality standards (NR 140).

## SCHEDULE OF EVENTS

This revised workplan is due on January 31, 1995 at the WDNR office. The WDNR stated that a review of the workplan could be completed in one (1) week. The proposed wells will be installed following receipt of WDNR approval, permitting that weather conditions and driller availability cooperate. GES anticipates starting the geotechnical investigation (drilling) within three (3) weeks after the WDNR has approved the workplan. It is anticipated that the geotechnical investigation will last approximately two (2) weeks.

Within two (2) weeks after drilling has been completed, GES will conduct a groundwater sampling event on all site monitoring wells and piezometers and perform slug tests on newly installed wells. Three (3) months after the first groundwater sampling event, GES will perform a second round of groundwater sampling on all monitoring wells and piezometers.

GES will compile all data collected during the investigation, including the second round of groundwater quality sampling and complete an Environmental Contamination Assessment (ECA) Report by July 31, 1995.



**GROWTH**
ENVIRONMENTAL SERVICES, INC.
Formerly U.S. Environmental Consulting, Inc.

DESCRIPTION
# PROPOSED WELL LOCATIONS

FIGURE 2

PROJ. DATE 6/6–6/9/94

PROJECT NUMBER WI069421E

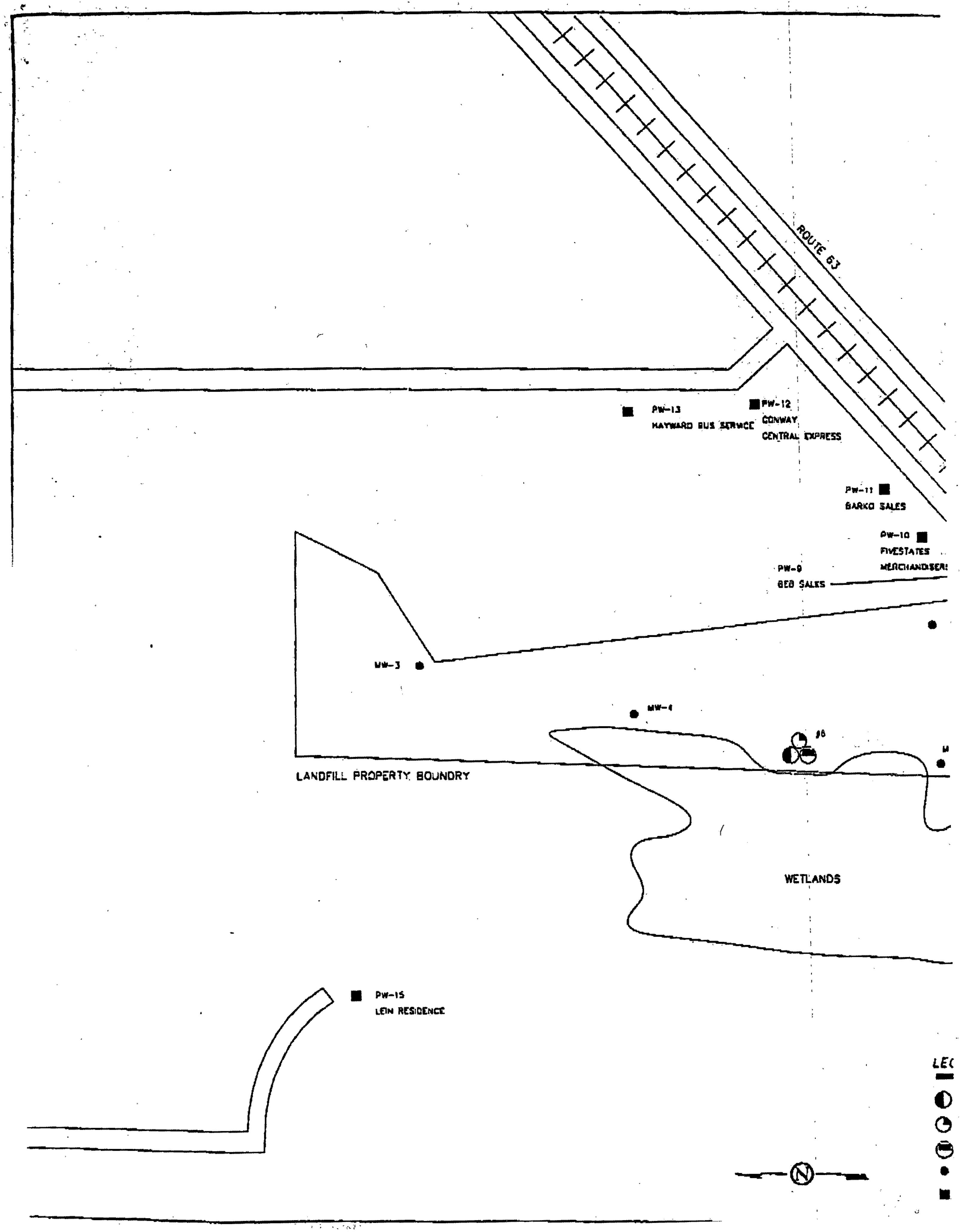
PROJECT/LOCATION
HAYWARD LANDFILL
HAYWARD, WI

PROJECT MANAGER D. WORDEN

FILE NAME 069421-3

DRAWING DATE 8/9/94

DRAWN BY: NSK


ROUTE 63
PW-13
HAYWARD BUS SERVICE
PW-12
CONWAY
CENTRAL EXPRESS
PW-11
BARKO SALES
PW-10
FIVESTATES
MERCHANDISERS
PW-9
BEB SALES
MW-3
MW-4
#6
LANDFILL PROPERTY BOUNDRY
WETLANDS
PW-15
LEIN RESIDENCE
N
LEG

## SAMPLING PLAN FOR THE CITY OF HAYWARD LANDFILL
### License # 01751

This sampling plan presents a description of the methods Growth Environmental Services, Inc. (GES) anticipates using to obtain, preserve, and analyze all water samples that will be collected at the City of Hayward Landfill. It also discusses general sampling procedures and sampling documentation.

All groundwater sampling information will be documented on the .Groundwater Sampling General Field Sheet. and/or on the .Well Specific Field Sheet. when monitoring well sampling is performed. These two forms are recommended by the WDNR in their .Groundwater Sampling Procedures Guidelines – Feb. 1987. guidance document.

The following information will be obtained:

### 1.) In – Field Measurements:

*a) Water level measurements:*

The equipment used by GES to measure water levels is a Solinist water level indicator. The water level is measured and recorded to the nearest .01 feet. The cable is marked in one (1) foot intervals.

Corrections for the actual water level depth will be made to USGS elevation of the well. Corrections for individual well casing elevations and ground surface elevations have to be made, depending on the reporting requirements. We will use existing survey data provided by the City of Hayward in their original closure documentation submitted to the DNR.

*b) Temperature and Conductivity measurements:*

The equipment used to measure temperature is the Yellow Springs Instrument Co., Inc. (YSI) T–L–C Meter Model 3000 equipped with the YSI model 3050 probe.

The T–L–C meter is a self–contained field instrument and probe system that measures temperature compensated conductivity for water quality applications. The T–L–C meter has a digital display. The instrument is watertight. The probe is an integral conductivity/temperature probe made of chlorinated polyvinyl chloride and equipped with a stainless steel weight to facilitate lowering of the probe into the well casing. The probe is one (1) inch in diameter by 4 and 3/4 inches in length. Two platinized electrodes measure conductivity and a precision thermilinear thermistor measures temperature. A 150 foot polyurethane jacketed cable is attached to the probe.

The probe is equipped with two platinized electrodes measuring conductivity. The probe accurately measures conductivity changes in 10 seconds.

The T–L–C meter gives direct readings for conductivity with a sensor that has a cell constant of K = 5.0 cm. The T–L–C meter is equipped with two temperature compensated conductivity ranges where the reading is automatically corrected to 25 degrees C. The temperature correction formula uses a temperature coefficient of 2%/degrees C (as in .Official Methods of Analysis of the Association of Analytical Chemists.).

The procedures used to measure conductivity are:

- The function switch on the T–L–C meter is set to 2 mS/cm TC to 25 degrees C.
- The probe is lowered into the well and completely submerged in water.
- Let the probe equilibrate for 1 – 2 minutes.
- Read off the displayed value. If the overange signal of 1 is displayed then the switch needs to be reset to 20 mS/cm TC to 25 degrees C., since the conductivity is greater than 1.999 mS/cm.
- The procedure is repeated two times to determine an average value.

The meter is factory calibrated and cannot be recalibrated in the field.

c) ***pH measurements:***

pH measurements are conducted with a portable pH meter. During water sample retrieval, a small (4 oz.) jar is filled with water in which a probe is inserted and pH is measured.

The order of the in–field measurements is as follows:

– water level measurements
– conductivity measurements
– temperature measurements
– well purging
– pH sampling

## 2.) Purging:

### *a) Monitoring wells:*

Purging of all the monitoring wells which are situated in the DMZ zone of the landfill will be accomplished with a disposable 36 inch Teflon bailer with a 2" inner diameter. A new bailer will be used for each monitoring well.

The procedures used for purging with disposable bailers are listed below:

- A disposable Teflon bailer is prepared with a nylon string.
- The person performing the bailing is wearing sampling gloves.

- The bailer is repeatedly lowered into the well to retrieve enough water to fulfill the purging volume requirement which was previously calculated. Four (4) well volumes are usually removed as recommended by WDNR.

- The water is emptied from the bailer into a graduated bucket to measure the volume removed.

- The water is then transferred and stored in a 55-gallon drum

The equation used to calculate one well volume is as follows:

V = π x (D/2)^2 x H which is multiplied by four to achieve four well volumes and multiplied by 7.48 gal ft^2 to achieve a value for gallons of water.

V = Total volume of water needed to purge in ft^3.
π = the number pi
D = Inside diameter of the well in feet
H = Height of water column in the well in feet.

After a new monitoring well or piezometer has been installed it is developed using the above methods. Ten (10) well volumes are removed during well development procedures based on the above equation.

*b) Water supply wells and private wells:*

The water supply wells located within 1,200 feet of the limits of the landfill and all private wells which were identified by the WDNR need to be purged differently. Since it is assumed that they are all currently in operation, purging needs to occur via the well pump equipment or from tap outlets. The required well volume for each well will be calculated as mentioned in section 2a.

- The water supply system needs to be flushed out completely during purging. It is important that the pump is running with the water flowing for at least one minute. Flushing of the system is important to ensure that well water is actually flowing through the system and not water that has been in contact with plumbing or distribution systems.

- For small private water supply wells, if the access point for purging is on the well side of the pressure tank, let the water run for at least two minutes.

- If the access point is on the plumbing side of the pressure tank, let the water run for at least five minutes.

## 3.) Sample Withdrawal:

### *a) Monitoring wells:*

Sample withdrawal from the site monitoring wells will be accomplished with a disposable 36 inch long Teflon bailer with a 2 inch inner diameter. The bailers are equipped with a nylon string to lower the bailer into the well. A new string is tied onto the bailer immediately prior to its use. A new bailer will be used for each well.

The procedures used to withdraw the sample are the following:

- The person performing the bailing is wearing sampling gloves.
- The bailer is lowered into the well slowly until it hits the water level. At that point it is even lowered more slowly until the bailer is completely filled.
- The bailer is then retrieved at a slightly faster but even speed.
- The first portion of the sample is discarded.
- The water is then released from the bottom of the bailer with a small tube (VOC sampling device) directly into the appropriate sampling bottle. The VOC sampling device comes with each bailer and consists of the same Teflon material as the bailer.
- One person holds the bailer so that no agitation of the water occurs. A second person inserts the VOC sample into the bottom of the bailer and releases the water into the sample bottle slowly against the wall of the vial to reduce air bubbles until a positive meniscus is formed.

Transfer containers are not used for water sampling. The time it takes between sample collection and the time the sample enters the sample bottle is minimal, probably average less than a minute (30 to 45 seconds). The physical appearance of the water sample (color, odor, turbidity) will be recorded at the time of sampling for each well.

### *b) Water supply wells and private wells:*

Sample withdrawal for the water supply wells located within 1,200 feet of the limits of the landfill and all private wells which were identified by WDNR is accomplished differently. Samples will be withdrawn directly from the well pump equipment, well sample point if existing or from a faucet inside homes with private wells. The order of well sampling is from cleanest well to most contaminated.

The procedures used to withdraw the sample are as follows:

- Samples from large water supply wells (with a distribution system) should be collected from sample taps near the pump before storage or pressure systems.

- Samples from small private wells need to be collected from a tap or sample outlet as close to the pump as possible before any water softener equipment, water heater, aerators, filter devices or pressure tanks.

- Samples need to be collected with a minimum amount of aeration and turbulence.

When collecting samples for VOC the following steps should be taken:

- Water should be run until it is cold.

- The water flow needs to be reduced to a thin stream.

- The vial will be filled striking the inner wall of the vial to minimize formation of air bubbles. Fill the vial completely forming a positive meniscus by letting it overflow slightly.

### 4.) Sample Preservation:

Water samples will be analyzed for VOC and for a variety of metals as listed in Table 2 of NR 508.14 Wisconsin Administrative Code, .public health and welfare parameters.. The bottle type and volume used for each parameter is anticipated to be slightly different depending on which lab is used. Typically VOC's are sampled in 4 – 40 ml septa vials preserved with hydrochloric acid. Metals are sampled in plastic bottles.

All sample preservation, bottle requirements and preparation is performed by the laboratory. The preservatives are applied to the sample bottles in the laboratory.

Once samples are collected they are immediately placed into a cooler on ice to maintain the required 4° C temperature.

### 5.) Quality Assurance/Quality Control Blanks:

For the required VOC sampling, a trip blank and a field blank will be collected. The trip blank and field blank will also become applicable if any of the metals (as listed on the required health and welfare parameter list) are preserved with a different kind of acid than the VOC samples.

- One trip blank will be collected per field sampling event. If coolers are shipped to the laboratory separately on different days during the course of a 4 – 5 day field sampling event, then one trip blank per shipment will be included.

### 6.) Duplicates: -

One duplicate sample will be collected for the VOC sampling round. The duplicate sample will be collected midway through the sampling event.

Each group of wells, the site monitoring wells, the water supply wells and the private wells will be treated as separate sampling events. Therefore, each event will have its own field blanks and trip blanks associated with it.

### 7.) Sample Transportation:

Samples will either be shipped via UPS next day or be picked up by a laboratory courier.

### 8.) Equipment Cleaning:

The water level indicator and T–L–C meter are decontaminated using the following procedure:

- Probe will be cleaned with an Alconox and deionized water solution.
- Triple rinse probe with deionized water.

Decontamination procedures for the pH meter consist of a triple rinse with deionized water before and after each use.

### 9.) Documentation:

For each well and each sampling event, either a .Groundwater Sampling General Field Sheet. or a .Well Specific Field Sheet. will be filled out in the field. Any additional information that is not covered in any of the specific questions should be included under the comment section.

For water supply wells and private wells, additional information about the pump, other well equipment (like water softeners, etc.) and the tap used for sampling needs to be documented.

# Scope of Services
# City of Hayward Landfill
### January 27, 1995

## TASK I Geotechnical Investigation for Environmental Contamination Assessment (ECA)

The proposed scope of work will commence with the installation of five (5) monitoring wells, six (6) shallow piezometers, and six (6) deep piezometers. The monitoring wells will be drilled to approximately 30 feet below ground level (BGL). The shallow piezometers will be drilled to approximately 45 feet BGL. The deep piezometers will be drilled to approximately 100 feet BGL The deep piezometers will be used to monitor groundwater quality in relation to the new Beehive Botanical well (PW-1). These additional wells will help define the vertical and horizontal extent of groundwater contamination. A total of approximately, 1,070 feet will be drilled in conjunction with the geotechnical investigation.

The monitoring wells and shallow piezometers will be installed with a truck mounted drill rig and 4.25 inch I.D. hollow stem augers (HSA). The deep piezometers will be installed using rotosonic drilling or casing and hammer drilling, based on cost estimates and project timeframes. All wells will be constructed with 2 inch I.D., schedule 40 PVC piping. Well screens will be factory cut with 0.010 inch slots. The wells will be constructed and developed in accordance with the requirements outlined in NR 508.05 and NR 141. Equipment decontamination procedures will be followed to minimize the possibility of cross-contamination. All drilling equipment will be decontaminated with a high pressure steam cleaning system prior to and after each well has been installed. Drill cuttings will be spread on the ground near the well location.

A minimum of one sample will be collected in the saturated zone from each monitoring well and piezometer location (17 total samples). It is anticipated that the soil samples will be collected where the well screens will be placed. The soil samples will be analyzed for grain size distribution according to NR 512.11 (4). These results will help determine the groundwater flow characteristics.

A minimum of two (2) soil borings will be conducted within the boundaries of the former landfill. These borings will help determine if the current clay cap meets WDNR guidelines. One (1) soil sample from each boring will be analyzed for grain size distribution. These borings will be advanced until the bottom of the waste has been encountered. Level C personal protection is recommended while drilling these borings within the limits of the waste. In order to determine if half face respirator will be necessary, air monitoring will be conducted during drilling operations.

All five (5) current monitoring wells located at the City of Hayward Landfill require J-plugs to be placed over the PVC pipes. A J-plug seals the well and restricts foreign objects from falling into the well when it is not being sampled.

## TASK II Quarterly Groundwater Monitoring (first event)

Growth Environmental Services, Inc. (GES) will develop all new monitoring wells and piezometers prior to any groundwater quality sampling.

GES will conduct a round of groundwater sampling on all newly installed monitoring wells and piezometers and the five (5) current monitoring wells. One (1) duplicate sample, one (1) field blank, and one (1) trip blank will be collected during the sampling event. These samples are used to check QA/QC procedures. The private residence wells will not be sampled during this event. A WDNR certified laboratory will analyze all groundwater samples collected. The wells will be analyzed for the following:

- Volatile Organic Compounds (VOC), method 8260
- Public health and welfare parameters listed in Table 2 of NR 508.14 and indicator parameters listed in Table 1 of NR 508.10:

Dissolved Metals
- Arsenic
- Barium
- Cadmium
- Chromium
- Copper
- Lead
- Manganese
- Mercury
- Selenium
- Silver
- Zinc

- Fluoride
- Nitrite/Nitrate
- Sulfate
- TDS

- Total Alkalinity
- Total Hardness
- Dissolved Iron
- Chloride
- COD

The following field measurements will be collected from each monitoring well and piezometer: temperature, conductivity, pH, odor, turbidity, and groundwater elevations.

In-field hydraulic conductivity tests will be conducted on the new monitoring wells and piezometers according to NR 512.22 (4). These tests will be conducted after the groundwater sampling event has been completed.

This sampling round will also satisfy the City of Hayward's requirements for quarterly monitoring (TADs).

## TASK III Quarterly Groundwater Monitoring (second event)

GES will conduct a second round of groundwater sampling on all newly installed monitoring wells and piezometers and the five (5) current monitoring wells. A WDNR certified laboratory will analyze all groundwater samples collected. The wells will be analyzed for the following:

- Volatile Organic Compounds (VOC), method 8260
- Public health and welfare parameters listed in Table 2 of NR 508.14 and indicator parameters listed in Table 1 of NR 508.10 (refer to list in Task II).

The following field measurements will be collected from each monitoring well and piezometer: temperature, conductivity, pH, odor, turbidity, and groundwater elevations.

This sampling round will also satisfy the City of Hayward's requirements for quarterly monitoring (TADs).

## TASK IV Documentation and Report Preparation

After laboratory results have been received and evaluated, the Environmental Contamination Assessment (ECA) Report will be prepared according to the "Closure Plan Modification", NR 508.20, and NR 716.15 requirements. The ECA Report will document all previous investigations completed at the site, document and discuss recent groundwater sampling activities and evaluate the extent of groundwater contamination. The ECA Report will also provide a brief description of site restoration alternatives, and recommend a feasible alternative that will result in compliance with the WDNR groundwater quality standards (NR 140). After completion, the ECA Report will be submitted to the WDNR for review. In addition, preparation of associated reports and graphics will be produced as part of this Task. For a more detailed description, please refer to the Workplan dated January 27, 1995. A detailed Remedial Design Report (excluded from this Scope of Services) will be required after the ECA Report has been completed.

## TASK V Contaminated Water Management

Charges for storage, transport, and disposal of contaminated water will be billed at cost plus 15%. Groundwater disposal charges will be based on contaminant concentrations. The water may be treated at a local wastewater treatment plant, an off site location or disposed of at the site.

# A3

## Wisconsin State Historical Society Letter

State Historical Society of Wisconsin

Division of Historic Preservation

*816 State Street • Madison, Wisconsin 53706-1488*
*☎ (608) 264-6500 • FAX (608) 264-6404*

August 9, 1995

RECEIVED
AUG 10 1995
SHORT, ELLIOTT, HENDRICKSON
CHIPPEWA FALLS, WI

Mr. John E. Guhl
Short, Elliott, Hendrickson, Inc.
421 Frenette Drive
Chippewa Falls, Wisconsin 54729

**IN REPLY PLEASE REFER TO SHSW: 95-0975/SY**
RE: Environmental Contamination Assessment of Abandoned Hayward
ID: #HAYWA9503.00

Dear Mr. Guhl:

We have reviewed the above referenced project as required by Wis. Stat. §44.40 (1991). No properties would be affected by this project that are included in: The State or National Registers of Historic Places, the Wisconsin Inventory of Historic Places, or any list of locally designated historic places.

No further actions are necessary to document compliance with Wisconsin's historic preservation laws. If any federal funds, licenses, or permits will be involved in this undertaking, please contact us immediately for compliance with federal preservation laws, which are significantly different from state laws in scope and requirements.

If project plans should change or there are any questions concerning this matter, please contact Chip Brown, State Compliance Coordinator of my staff at (608) 264-6508. Thank you for your attention to this matter.

Sincerely,

Richard W. Dexter
Chief, Compliance Section

RWD:lks
EA2STATE

# A4

## Bureau of Endangered Resources Letter

WISCONSIN
DEPT. OF NATURAL RESOURCES

**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-266-2621
TELEFAX 608-267-3579
TDD 608-267-6897

George E. Meyer
Secretary

August 4, 1995

IN REPLY REFER TO: 1650

Mr. John E. Guhl
Short Elliot Henrickson, Inc.
421 Frenette Drive
Chippewa Falls, WI 54729

SUBJECT: Endangered Resources Information Review (Log Number 95-217)

Dear Mr. Guhl:

The Bureau of Endangered Resources has reviewed the project area described in your letter and Information Request Form of July 10, 1995 for the environmental contamination assessment of an abandoned municipal landfill in the City of Hayward.

Our Natural Heritage Inventory (NHI) data files contain the following rare species information for the site located in Sections 28, 19, 32, and 33 of T41N R9W, Sawyer County. The species information provided includes the location, date of the most recent observation, and other information useful in planning protection measures. Rare species occurring within or near the project site include:

> *Clemmys insculpta* (wood turtle), a turtle listed as Threatened in Wisconsin, occurs in Section [redacted] and [redacted] of T41N R9W. The observation dates for these occurrence records are 1992 and 1985, respectively. This species prefers deciduous forests and open meadows along moderate- to fast-moving streams and rivers. The breeding season extends from early April through late August.

Comprehensive endangered resource surveys have not been completed for the project area. As a result, our data files may be incomplete. The lack of additional known occurrences does not preclude the possibility that other endangered resources may be present.

The specific location of endangered resources is sensitive information that has been provided to you for the analysis and review of this project. Exact locations should not be released or reproduced in any publicly disseminated documents.

**This letter is for informational purposes and only addresses endangered resource issues. This letter does not constitute Department of Natural Resources authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the Department.**

Please contact Becky Isenring at (608) 264-8968 if you have any questions about this information.

Sincerely,

Charles M. Pils

Charles M. Pils
Director, Bureau of Endangered Resources

cc: Bob Roden - EA/6
Paul Huebner - SW/3

cmp:RSI/[erir.sw]swcahayw.08

# Appendix B

## Water Supply Well Logs

①

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

## WELL CONSTRUCTOR'S REPORT

Form 3300–15 Rev. 12-76

MAY 20 1980

1. COUNTY Sawyer
CHECK (✓) ONE: ☒ Town ☐ Village ☐ City Name Hayward

2. LOCATION ¼ Section SW-SW Section 28 Township 41N Range 9W
OR – Grid or Street No. Street Name
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE
Five States Merchandisers, Inc.
ADDRESS Mike Pfister
Route 8
POST OFFICE Hayward, Wi. 54843

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building 5'
Sanitary Bldg. Drain C.I. / Other
Sanitary Bldg. Sewer C.I. / Other
Floor Drain Connected To: C.I. Sewer / Other Sewer
Storm Bldg. Drain C.I. / Other
Storm Bldg. Sewer C.I. / Other
Street Sewer San. / Storm
Other Sewers C.I. / Other
Foundation Drain Connected to: Sewer / Clearwater Dr. / Sewage Sump / Clearwater Sump
Sewage Sump C.I. / Other
Clearwater Sump
Septic Tank
Holding Tank
Sewage Absorption Unit: Seepage Pit / Seepage Bed / Seepage Trench
Privy
Pet Waste Pit
Pit: Nonconforming Existing Well / Pump / Tank
Subsurface Pumproom Nonconforming Existing
Barn Gutter
Animal Barn Pen
Animal Yard
Silo With Pit
Glass Lined Storage Facility
Silo w/o Pit
Earthen Silage Storage Trench Or Pit
Temporary Manure Stack
Watertight Liquid Manure Tank
Solid Manure Storage Structure
Subsurface Gasoline or Oil Tank
Waste Pond or Land Disposal Unit (Specify Type)
Other (Give Description)

5. Well is intended to supply water for: Warehouse

6. DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 4 | Surface | 55 | | | |

7. CASING, LINER, CURBING AND SCREEN

| Dia. (in.) | Material, Weight, Specification & Method of Assembly | From (ft.) | To (ft.) |
|---|---|---|---|
| 4 | ASTM-A53 USS Blk Steel<br>T&C 11:00 | Surface | 52 |
| 4 | Stainless Steel | 52 | 55 |

8. GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Self-fill | Surface | 3 |

(no upper drillhole)

9. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| Sand | Surface | 12 |
| Sand & Gravel Clay | 12 | 35 |
| Rocky | 35 | 38 |
| Sand & Gravel Clay | 38 | 50 |
| Sand & Gravel Water | 50 | 55 |

10. TYPE OF DRILLING MACHINE USED
☐ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☒ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with ☐ Air ☐ Water

Well construction completed on 8-30 19 79

Well is terminated 10 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA
Yield Test: 1 Hrs. at 15 GPM
Depth from surface to normal water level 38 Ft.
Depth of water level when pumping 46 Ft. Stabilized ☒ Yes ☐ No
Water sample sent to Madison, WI laboratory on 9-3 19 79

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature Thomas Butterfield Registered Well Driller

Complete Mail Address Route 5, Hayward, Wi. 54843

②

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

# WELL CONSTRUCTOR'S REPORT

Form 3300-15 Rev. 12-76

NOV 23 1982

1. COUNTY Sawyer

CHECK (✓) ONE: ☒ Town ☐ Village ☐ City Name Hayward

| | ¼ Section | Section ✓ | Township | Range |
|---|---|---|---|---|
| 2. LOCATION | SW-SW | 28 | 41 N | 9W |

OR – Grid or Street No. Street Name

AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE
Lenard Asp
ADDRESS
Rt 8
POST OFFICE
Hayward, WI 54843

4. Distance in feet from well to nearest: (Record answer in appropriate block)

| Building | Sanitary Bldg. Drain C.I. | Sanitary Bldg. Drain Other | Sanitary Bldg. Sewer C.I. | Sanitary Bldg. Sewer Other | Floor Drain Connected To: C.I. Sewer | Floor Drain Connected To: Other Sewer | Storm Bldg. Drain C.I. | Storm Bldg. Drain Other | Storm Bldg. Sewer C.I. | Storm Bldg. Sewer Other |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | | | | | | | | | |

| Street Sewer San. | Street Sewer Storm | Other Sewers C.I. | Other Sewers Other | Foundation Drain Connected to: Sewer | Clearwater Dr. | Sewage Sump | Clearwater Sump | Sewage Sump C.I. | Sewage Sump Other | Clearwater Sump | Septic Tank | Holding Tank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 30 | |

Sewage Absorption Unit:
Seepage Pit
Seepage Bed 55
Seepage Trench

| Privy | Pet Waste Pit | Pit: Nonconforming Existing Well | Pump | Tank | Subsurface Pumproom Nonconforming Existing | Barn Gutter | Animal Barn Pen | Animal Yard | Silo With Pit | Glass Lined Storage Facility | Silo w/o Pit | Earthen Silage Storage Trench Or Pit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

| Temporary Manure Stack | Watertight Liquid Manure Tank | Solid Manure Storage Structure | Subsurface Gasoline or Oil Tank | Waste Pond or Land Disposal Unit (Specify Type) | Other (Give Description) |
|---|---|---|---|---|---|
| | | | | | |

5. Well is intended to supply water for: home

6. DRILLHOLE

| Dia. (in.) | From (ft.) | To (ft.) | Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|---|---|---|
| 10 | Surface | 20 | 4 | 20 | 42 |

7. CASING, LINER, CURBING AND SCREEN

| Dia. (in.) | Material, Weight, Specification & Method of Assembly | From (ft.) | To (ft.) |
|---|---|---|---|
| 4" | New Black steel, 11.00#/ft<br>ASTM A53, T&C, USS | Surface | 39 |
| 4 | stainless steel screen | 39 | 42 |

8. GROUT OR OTHER SEALING MATERIAL

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| clay slurry | Surface | 20 |

9. FORMATIONS

| Kind | From (ft.) | To (ft.) |
|---|---|---|
| sand, gravel, some clay | Surface | 34 |
| sand (w) | 34 | 42 |

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☐ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with ☐ Air ☐ Water

Well construction completed on 10-1 1980

Well is terminated 10 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield Test: 2 Hrs. at 18 GPM

Depth from surface to normal water level 23 Ft.

Depth of water level when pumping 24 Ft. Stabilized ☒ Yes ☐ No

Water sample sent to Madison laboratory on October 1 1980

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature Roscoe C. Butterfield Registered Well Driller

Complete Mail Address Rt. 3
Hayward, WI 54843

(16)

# Well Construction Report For
# *WISCONSIN UNIQUE WELL NUMBER* CE 692

MAY 14 1990

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

Property Owner Mr. Warren Ogren
Telephone Number (715) 634-4274
Mailing Address Rt. 8
City Hayward
State WI
Zip Code 54843
County of Well Location 58 Sawyer
County Well Location Permit No. W
Well Completion Date 05 08 90 (MM DD YY)

Well Constructor (Business Name) Tom Butterfield Drilling
Registration # 555
Address Rt. 1 Box 1086
City Hayward,
State WI
Zip Code 54843

N

**1. Location** (Please type or print using a black pen.)
☒ Town ☐ City ☐ Village of Hayward
Fire # (if available)
Grid or Street Address or Road Name and Number (if available) Hwy 63 S.
Subdivision Name
Lot #
Block #
Gov't Lot # ____ or NW ¼ of NW ¼ of Section 32; T 41 N; R 9 ☐ E ☒ W

**2. Mark well location in correct 40-acre parcel of section.**

N
W E
S
X

**3. Well Type** ☒ New ☐ Replacement ☐ Reconstruction
of unique well # ____ constructed in 19____.
Reason for new, replaced or reconstructed well?

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other ____

**4. Well serves** 1 # of homes and/or Business
(ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☐ Yes ☒ No
High Capacity Property? ☐ Yes ☒ No

**5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings?** ☒ Yes ☐ No If no, explain on back side.
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:

1200 1. Landfill OLD HAYWARD (est.)
9 2. Building Overhang
NOT INSTALLED 3. Septic or Holding Tank
4. Sewage Absorption Unit
____ 5. Nonconforming Pit
____ 6. Buried Home Heating Oil Tank
____ 7. Buried Petroleum Tank
____ 8. Shoreline/Swimming Pool
____ 9. Downspout/Yard Hydrant
____ 10. Privy
____ 11. Foundation Drain to Clearwater
____ 12. Foundation Drain to Sewer
____ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
____ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 15. Collector or Street Sewer
____ 16. Clearwater Sump
____ 17. Wastewater Sump
____ 18. Paved Animal Barn Pen
____ 19. Animal Yard or Shelter
____ 20. Silo — Type ____
____ 21. Barn Gutter
____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
____ 23. Other Manure Storage ____ Other NR 112 Waste Source
____ 24. ____

**6. Drillhole Dimensions**

| Dia. (in.) | From (ft.) | To (ft.) |
|---|---|---|
| 8.75 ~~8¾~~ | surface | 37 |

Method of constructing upper enlarged drillhole only.
☐ 1. Rotary — Mud Circulation
☒ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit ____ in. dia.
☐ 6. Temp. Outer Casing ____ in. dia.
Removed? ☐ Yes ☐ No
If no, explain ____
☐ 7. Other ____

**9. Geology**

| DNR USE ONLY | Type, Caving/Noncaving, Color, Hardness, Etc. | From (ft.) | To (ft.) |
|---|---|---|---|
| S | Sand | surface | 9 |
| G | Boulders | 9 | 18' |
| WSG | Sand & Gravel (W.) | 18' | 37' |

**7. Casing, Liner, Screen**

| Dia. (in.) | Material, Weight, Specification Mfg. & Method of Assembly | From (ft.) | To (ft.) |
|---|---|---|---|
| 5 | PLASTIC<br>SDR 21 200PSI<br>ASTM D 2241, 5" Eagle PVC 1120<br>NSP Well Casing | surface | 34 |

| Dia. (in.) | screen type and material | From | To |
|---|---|---|---|
| 5 | 15 Slot [redacted] | 34 | 37 |

**8. Grout or Other Sealing Material**
Method Pressure

| Kind of Sealing Material | From (ft.) | To (ft.) | # Sacks Cement |
|---|---|---|---|
| Grout (mud) | surface | 34 | |

**10. Static Water Level**
____ ft. above ground level
25 ft. below ground surface

**11. Pump Test**
Pumping Level 28 ft. below surface
Pumping at 10 GPM for 2 hours

**12. Well Is:**
14 in. ☒ Above ☐ Below Grade
Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

**13. Did you permanently seal all unused, noncomplying, or unsafe wells?**
☒ Yes ☐ No If no, explain ____

**14. Signature of Point Driver or Registered Driller** Thomas Butterfield TB
Date Signed 5/10/90
Signature of Drill Rig Operator Thomas Butterfield TB
Date Signed 5/10/90

Make additional comments on reverse side about geology, etc.

DNR

WGNHS ORIGINAL

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 9-88

48

Department of Natural Resources

## WELL CONSTRUCTION REPORT COMMENT SHEET
Form 3300-85
Rev. 7-88

A = Add
C = Change F/M Code
D = Delete

WISCONSIN UNIQUE WELL NUMBER CE692

County Well Location Permit Number W
Distict
County
Owner's Name Mr. Warren Ogren

Hi-cap Permanent Well Number
Geologic Log Number
Common Well Number
Common Well Name
Specific Capacity
Date of Approval
Approval Number
Facility I.D. Number
SID Number

### VARIANCE
(1) Type (01 = Distance, 02 = Depth, 03 = Landfill, 04 = Well Construction, 05 = Pump, 06 = Other)
Date of Approval
Reason for Issuance
Granted (Y or N)

(2) Type (01 = Distance, 02 = Depth, 03 = Landfill, 04 = Well Construction, 05 = Pump, 06 = Other)
Date of Approval
Reason for Issuance
Granted (Y or N)

### WATER TREATMENT DEVICE
(1) Type (01 = Asthetic, 02 = Contaminant)
Date of Approval
Comments

(2) Type (01 = Asthetic, 02 = Contaminant)
Date of Approval
Comments

### REHABILITATION/REDEVELOPMENT
(1) Type (01 = Blast, 02 = Hydrofracture, 03 = Sonar Jet, 04 = Acidize, 05 = Batch Chlorination, 06 = Air Development)
Date of Approval
Date Performed
Results

(2) Type (01 = Blast, 02 = Hydrofracture, 03 = Sonar Jet, 04 = Acidize, 05 = Batch Chlorination, 06 = Air Development)
Date of Approval
Date Performed
Results

Comments on Reverse Y (Y or N)

### DRILLER NOTES
Water Quality

Water Quantity

Difficulty in Drilling

Other N. Cable has asked Mr. Butterfield to move the well as it is only 1092' from landfill. She sent a NON to Mr. Butterfield.

Geology:

| SGS Code | Type, Caving/Noncaving, Color, etc. | USGS Code | From | To |
|---|---|---|---|---|
| | | | | |

### INSPECTIONS
Type 01 (01 = Spot Check, 02 = Complaint, 03 = Sanitary Survey)
Date of Request 061190
Date of Inspection 062190
Problems Noted N. Cable reports distance to landfill measured by M. Grasberg to be 1092'

### ABANDONMENT
Code (T = Temporary P = Permanent)
Date of Abandonment
Abandonment Procedure Chipped bentonite to 37' ~~[illegible]~~ poured slowly
Reason Contaminated water CN293 replaced this well

# Appendix C

## Field Methodologies

# Appendix C

## Field Methodologies

# Field Methodologies

## Soil Boring Installation and Soil Sample Collection

Shallow boreholes were installed using 4-1/4 inch inside diameter hollow stem augers, in accordance with the American Society for Testing and Materials (ASTM) Method D1586, section 5.1.3. Deep boreholes were installed using mud-rotary drilling techniques due to the wet flowing sand layers encountered with depth. A standard 2-inch outside diameter split-barrel sampler was used to collect soil samples in accordance with ASTM method D1586.

Samples were described in the field with respect to the soil type (Unified Soil Classification System), grain size distribution, color (or discoloration), odor, moisture content, consistency and flame ionizable constituent content, as appropriate. Observations were recorded on soil boring logs (Appendix D). Between each sampling episode, the split barreled sampler was washed in an Alconox solution and double rinsed in clean tap water. All down-hole equipment was cleaned between borings using a high-pressure hot water wash.

Recovered soil samples were containerized for potential geotechnical analysis as well as in-field headspace screening analysis. Samples were collected from the screened intervals for grain size analysis. Following collection, all samples were clearly labeled and securely stored pending delivery to the geotechnical laboratory. Sample labels identified the date of sample collection, the project discreet identification number, the sampling location, the depth from which the sample was collected, and the sample matrix. Samples were delivered to SEH's geotechnical laboratory for analysis.

## Field FID Screening

Soil samples were collected from each sampling interval for in-field screening with a flame ionization detector (FID). The FID yields a semi-quantitative headspace analysis of the volatile compounds. The FID was calibrated in the field, according to manufacturer's instructions, using 100 ppm methane gas, and checked between each screening event for proper response. The peak instrument readings were recorded on the soil boring logs.

The soil samples were loosely placed in resealable plastic bags to provide sufficient headspace to optimize FID screening results. The samples were allowed to warm to approximately 70 degrees F and screened in the field using a Foxboro Organic Vapor Analyzer - 128 Flame Ionization Detector.

### Monitoring Well Installation

Following soil boring drilling and sampling, groundwater monitoring wells were installed in a manner consistent with ch. NR 141 Wis. Adm. Code using standard methodologies. Monitoring wells were installed by Huntingdon Engineering and Environmental of Wausau, Wisconsin. The shallow wells and piezometers are constructed of Schedule 40 polyvinyl chloride (PVC) flush threading factory cut 0.010 slot (10 slot) well screens, and flush threading Schedule 40 PVC riser pipes. The deep piezometers were constructed of Schedule 80 PVC. Filter pack materials consist of coarse sand, extending above the top of the well screen, overlain by approximately one foot of fine sand. The coarse sand consisted of Red Flint Sand and Gravel Company #30 flint sand. The fine sand consisted of Red Flint Sand and Gravel Company #45-#55 flint sand. Bentonite pellets, chipped bentonite, granular bentonite, and/or bentonite grout was used as a sealing material, and extended from the top of the fine sand to ground surface. The wells were finished with locking steel protective casings. Temporary wells installed within the refuse disposal area were constructed in general accordance with the ch. NR 141 Wis. Adm. Code guidelines except that steel protective casings were not installed. Following installation, the permanent wells and peizometers were allowed to equilibrate and were then developed by surging and purging the wells using a submersible pump.

### Depth to Water Measurements

Depth to water measurements were collected with a Solinst Model 101 electric water level meter. The depth to water is a measurement of the vertical distance from a well's preestablished measuring point to the surface of the water table within the monitoring well. The distance from the measuring point to the surface of the water table is measured to the nearest 0.01 foot. Once the depth to water has been determined, the measured distance is recorded on field data sheets.

The depth to water measurements are converted to water table elevation readings by subtracting the measurement from the known elevation of the well's measuring point. The elevation of the well's measuring point has been determined by surveying the elevation of the point to a local survey bench mark.

### Well Development

The monitoring wells were developed in accordance with ch. NR 141 Wis. Adm. Code by surging and purging the wells of an appropriate volume of water. The appropriate volume of water to purge from a well during development, based on the volume of water within the well, is dependent on the thickness of the water column within a well. The thickness of the water column within a well is determined by subtracting the measured depth to water from the known depth of the well. Once the thickness of the water column is known, it is broken down into the number of feet of saturated sand pack within the well, and the number of feet of saturated riser within the well. For the purposes of this project, the volume of water per foot of saturated sand pack has been estimated to be 0.74 gallons/foot (gpf), and the volume of water per foot of saturated riser has been estimated to be 0.16 gpf. The total volume of water within a well is therefore 0.74 gpf multiplied by the thickness of the saturated sand pack, added to 0.16 gpf multiplied by the thickness of saturated riser. For the purposes of this project, the appropriate volume of water to remove during development is ten times the volume of water within a well. If, however, the well can be pumped or bailed dry during development, and will not produce the calculated appropriate volume of water, the well is bailed or pumped dry three times to complete development. Several wells and piezometers on this project were developed only until turbidity was removed (prior to removal of ten well volumes). The volume of water actually removed from the well is recorded on well development forms.

### Well Purging/Groundwater Sample Collection

Prior to collection of groundwater samples, the wells were purged of an appropriate volume of water. The volume of water to purge from a well prior to sampling is calculated by multiplying 0.16 gallons (volume per foot of riser pipe) by the thickness of the saturated riser. For the purposes of this project, the appropriate volume of water to remove prior to sampling is four times the volume of water within the well riser. If, however, the well can be pumped or bailed dry during purging, and will not produce the calculated appropriate volume of water, the well is bailed or pumped dry prior to sampling. The volume of water actually removed from the well is recorded on field sampling data sheets.

After purging an appropriate volume of water, or purging a well dry, the wells were allowed to recharge. Following a period of recharge, groundwater samples were collected. Sampling for VOCs was conducted by lowering a decontaminated bailer into the water column within the well, in a manner such that disturbance to the water column was minimized. The bailer was then raised to the surface and fitted with a bottom-discharging sampling point. Water was then discharged from the bailer, through the bottom-discharging sampling point, into the appropriate, laboratory supplied, sample container. Sampling for indicator parameters, public health and public welfare standards were sampled from the discharge of the submersible pump after well purging had been completed. Groundwater samples were filtered and/or preserved as necessary with 1:1 HCL, $H_2S0_4$ or $HN0_3$. Following collection, all samples were clearly labeled, placed in a cooler, on-ice, and securely stored pending delivery to the laboratory. Sample labels identified the date of sample collection, the project discreet identification number, the sampling location, and the sample matrix.

## Analytical Methodology

The soil and groundwater samples collected from the Hayward Landfill were analyzed in accordance with the following analytical methods:

| Indicator Parameters | Analytical Method |
|---|---|
| Field temperature | Field Instrumentation |
| Field conductivity (25 C) | Field Instrumentation |
| Field pH | Field Instrumentation |
| Total alkalinity, filtered | EPA SW846 Method 310.1 |
| COD, filtered | EPA SW846 Method 410.1 |
| Total Hardness, filtered | EPA SW846 Method 6010 |
| Groundwater elevation | Field Instrumentation |
| **Public Welfare Standards** | |
| Chloride | EPA SW846 Method 9251 |
| Copper, dissolved | EPA SW846 Method 6010 |
| Iron, dissolved | EPA SW846 Method 6010 |
| Manganese, dissolved | EPA SW846 Method 6010 |
| Sulfate, dissolved | EPA SW846 Method 9036 |
| Total Dissolved Solids | EPA SW846 Method 160.1 |
| Zinc, dissolved | EPA SW846 Method 6010 |
| **Public Health Standards** | |
| Arsenic, dissolved | EPA SW846 Method 6010 |
| Barium, dissolved | EPA SW846 Method 6010 |
| Cadmium, dissolved | EPA SW846 Method 6010 |
| Chromium, dissolved | EPA SW846 Method 6010 |
| Fluoride, dissolved | EPA SW846 Method 340.2 |
| Lead, dissolved | EPA SW846 Method 6010 |
| Mercury, dissolved | EPA SW846 Method 7421 |
| Nitrate+Nitrite (as N) | EPA SW846 Method 353.2 |
| Selenium, dissolved | EPA SW846 Method 7740 |
| Silver, dissolved | EPA SW846 Method 6010 |
| VOC Scan | EPA SW846 Method 8260 |

## Sample Custody

Sample custody procedures are designed to comply with U.S. EPA and National Enforcement Investigation Council (NEIC) requirements for sample control. Samples collected during the site investigation were the responsibility of identified persons from the time they were collected until they or their derived data were incorporated into the final report. Stringent chain-of-custody procedures were followed to maintain and document sample possession. A sample or evidence file is considered to be in the custody of the designated person if it is in possession; in view, after being in possession; was in possession and was placed in a secured location; or in a designated secure area.

Chain-of-custody forms were completed to the fullest extent possible prior to delivery of the sample to the laboratory (copies provided in Appendix I). They included the following information: sample number, date collected, source of sample (including type of sample and site identification) and name of sampler. The forms were filled out in a legible manner using waterproof ink and were signed by the sampler. Samples were also accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them signed, dated and noted the time on the record. The custody record documents sample custody transfer from the sampler to the laboratory.

### In Situ Hydraulic Conductivity Analysis

Hydraulic conductivity analyses were performed in the field on the five new shallow monitoring wells, six new shallow piezometers, and six new deep piezometers. The tests were performed by instantaneously lowering the head of water in each well and then measuring the rate of recharge. Water levels were lowered by removing one bailerful of water from each well at the onset of the test. Rates of recharge were measured using an Aquistar DL-1 datalogger which recorded water levels each second for the first two minutes of recharge, every five seconds for the next two minutes, and every minute thereafter.

Hydraulic conductivity values for each well were computed using the AQTESOLV® program. The Bouwer-Rice method for unconfined aquifers was used to perform the computations. A "best fit" hydraulic conductivity line was plotted for each well and piezometer based on the data points (Appendix G).

# Appendix D

## Soil Boring Logs

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-1S**

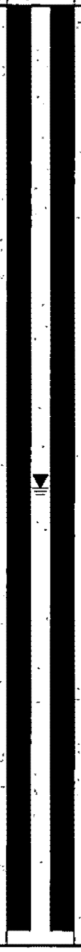
Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Brad Davis**
Date Drilling Started: **3/15/95**
Date Drilling Completed: **3/17/95**
Drilling Method: **4 1/4" HSA / 6" RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-1S**
Final Static Water Level: **1166.2** Feet MSL
Surface Elevation: **1185.0** Feet MSL
Borehole Diameter: **8.2/6.0** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**5851** Feet ☒ N ☐ S
**5454** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21<br>24<br>27<br>30<br>33<br>36 | Blind drill to 45'. Sampled 45-47, See PZ-1D Boring Log for Soil Descriptions.' | | |  | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. [illegible]

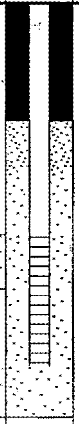
Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

**Soil Boring Log Information Supplement**
Form 4400-122A 7-91

Boring Number **PZ-1S** Use only as an attachment to Form 4400-122. Page **2** of **2**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39 | | | |  | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| 1 | 12 | 36-24-30-35 | 45 | Very Dense, Brown-gray Medium-coarse Grained SAND, Some Gravel, Trace Silt. | SP | | | | 54 | | | | | W |
| | | | 48 | | | | | | | | | | | |
| | | | 51 | | | | | | | | | | | |
| | | | | End of Boring at 52.0 ft. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 3

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**PZ-1D** |

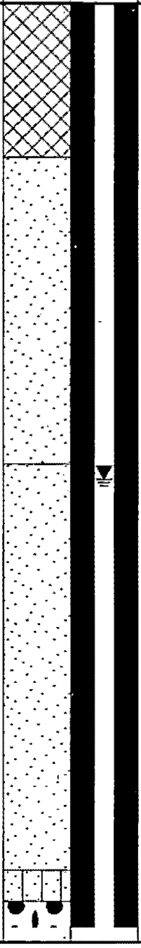
| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**3/7/95** | Date Drilling Completed<br>**3/14/95** | Drilling Method<br>**4 1/4" HSA / 6" RB** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-1D** | Final Static Water Level<br>**1166.4** Feet MSL | Surface Elevation<br>**1185.0** Feet MSL | Borehole Diameter<br>**6.0** Inches |

| | | |
|---|---|---|
| Boring Location<br>State Plane N, E<br>**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W | Lat **91° 30' 22"**<br>Long **46° 00' 10"** | Local Grid Location (If applicable)<br>**5851** Feet ☒ N ☐ S **5454** Feet ☒ E ☐ W |

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample Number | Sample Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties: Standard Penetration | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plastic Limit | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 7-12-26-12 | | FILL: Loose to Medium Dense, Brown Fine to Coarse Sand, Little Gravel, Trace Silt (soil frozen to 2.5 feet) | | | | ND | 38 | | | | | M |
| 2 | 10 | 6-2-2-3 | 3 | | | | | ND | 4 | | | | | M |
| 3 | 17 | 7-8-6-6 | | | | | | ND | 14 | | | | | M |
| 4 | 18 | 2-4-4-6 | 6 | Very Loose to Loose, Brown Fine to Medium SAND | SP | | | ND | 8 | | | | | M |
| 5 | 18 | 4-4-4-8 | 9 | | | | | ND | 8 | | | | | M |
| 6 | 19 | 3-2-3-3 | | | | | | ND | 5 | | | | | M |
| 7 | 17 | 2-3-2-3 | 12 | | | | | ND | 5 | | | | | M |
| 8 | 17 | 2-2-2-3 | 15 | | | | | ND | 4 | | | | | M |
| 9 | 18 | 2-2-3-3 | | | | | | ND | 5 | | | | | M |
| 10 | 16 | 2-1-2-1 | 18 | Very Loose to Medium Dense, Brown Fine to Coarse SAND, Little Gravel, Trace Silt | SP | | | 44 | 3 | | | | | W |
| 11 | NR | 2-2-3-1 | 21 | | | | | | 5 | | | | | W |
| 12 | NR | 3-2-4-10 | | | | | | | 6 | | | | | W |
| 13 | | 4-4-8-11 | 24 | | | | | 0 | 12 | | | | | W |
| 14 | 7 | 5-3-3-3 | 27 | | | | | 3 | 6 | | | | | W |
| 15 | 4 | 5-4-4-5 | | | | | | 5 | 8 | | | | | W |
| 16 | 5 | 4-4-5-5 | 30 | | | | | 10 | 9 | | | | | W |
| 17 | 5 | 7-9-8-9 | 33 | | | | | 56 | 17 | | | | | W |
| 18 | 6 | 14-21-17-14 | 36 | Dense, Brown-red Silty SAND, Trace Gravel | SM | | | 10 | 38 | | | | | W |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature
John E. Toll

Firm
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

**Soil Boring Log Information Supplement**
Form 4400-122A 7-91

Boring Number **PZ-1D** Use only as an attachment to Form 4400-122. Page **2** of **3**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 19 | 7 | 10-15-14-15 | | Medium Dense, Brown Sandy Gravel, Medium Coarse Grained Granite-Gabbro Rock Fragments | GP | | | 10 | 29 | | | | | W |
| 20 | | 14-14-16-20 | 39 | | SP | | | 11 | 30 | | | | | W |
| 21 | 14 | 18-27-28-32 | | Dense to Very Dense, Brown-red Fine-coarse Grained SAND, Little Gravel, Trace Silt. Thin 3" thick, Silty Sand Layer (37-38') | | | | 42 | 55 | | | | | W |
| 22 | 10 | 20-32-38-31 | 42 | | | | | 10 | 60 | | | | | W |
| 23 | 11 | 23-38-32-33 | 45 | | SP | | | 160 | 70 | | | | | W |
| 24 | 6 | 26-50-13 | | Very Dense, Brown-gray medium-fine grained SAND, Trace Silt. | | | | 40 | 63 | | | | | W |
| 25 | 14 | 35-41-45-35 | 48 | Very Dense, Brown-gray Gravel, and Sand, Trace Silt, Pounded on boulder last 6". | GP | | | 40 | 86 | | | | | W |
| 26 | 0 | 50-5 | 51 | | SP<br>SM | | | | 50 | | | | | W |
| 27 | 9 | 32-50 | | Very Dense, Gray Fine to Coarse SAND, Some Gravel, Trace to Little Silt, Occasional Cobbles and Boulders | | | | 92 | 50 | | | | | W |
| 28 | 11 | 37-51-50 | 54 | | | | | 8 | 101 | | | | | W |
| 29 | 3 | 50+ | 57 | | | | | 4 | 50 | | | | | W |
| 30 | 1 | 50+ | | Numerous Boulders and Cobbles | | | | 4 | 50 | | | | | W |
| 31 | 8 | 49-50 | 60 | Very Dense, Brown Fine to Coarse SAND, Some Gravel, Trace to Little Silt, Numerous Boulders and Cobbles | SP<br>SM | | | 2 | 99 | | | | | W |
| 32 | 12 | 29-42-40-48 | 63 | | | | | 2 | 82 | | | | | W |
| 33 | 6 | 16-50 | | | | | | 2 | 66 | | | | | W |
| 34 | 0 | 50 | 66 | | | | | | 50 | | | | | W |
| 35 | 6 | 29-50+ | 69 | | | | | 5 | 50 | | | | | W |
| 36 | 11 | 35-36-39-25+ | | Less Cobbles and Boulders Below 70' | | | | 6 | 75 | | | | | W |
| 37 | 9 | 36-40-50+ | 72 | | | | | 9 | 90 | | | | | W |
| 38 | 2 | 50 | 75 | Very Dense, Brown Fine Silty SAND | SP<br>SM | | | 2 | 50 | | | | | W |
| 39 | 1 | 50+ | | Very Dense to Dense, Brown Silty SAND, Some Gravel, Little Clay, Occasional Cobbles and/or Boulders, Occasional Silt Layers | SM | | | 4 | 50 | | | | | W |
| 40 | 3 | 50+ | 78 | | | | | 5 | 50 | | | | | W |
| 41 | 4 | 50+ | 81 | | | | | 35 | 50 | | | | | W |
| 42 | 1 | 50+ | | Broken Pieces of Stone in Tip, Poor Recovery | | | | 1 | 50 | | | | | W |
| 43 | 7 | 37-50 | 84 | | | | | 6 | 50 | | | | | W |
| 44 | 14 | 40-50-50+ | 87 | | | | | 2 | 100 | | | | | W |
| 45 | 14 | 44-44-51-48 | | Becomes Gradually less Silty with depth | | | | 6 | 95 | | | | | W |
| 46 | 3 | 50+ | 90 | | | | | 3 | 50 | | | | | W |
| 47 | 16 | 26-25-15-14 | 93 | | | | | 3 | 40 | | | | | W |
| 48 | 12 | 21-24-17-12 | | | | | | 2 | 41 | | | | | W |
| | | | 96 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-1D** Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 49 | 5 | 23-16-18-25 | | | | | | 1 | 34 | | | | | W |
| 50 | 12 | 14-28-33-27 | 99 | | | | | 1 | 61 | | | | | W |
| | | | | End of Boring at 100.0 feet | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

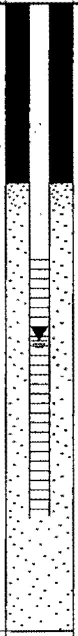
Page 1 of 1

| | | | |
|---|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**MW-6** | |
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Mike Kislow** | Date Drilling Started<br>**5/25/95** | Date Drilling Completed<br>**5/25/95** | Drilling Method<br>**4 1/4" HSA** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**MW-6** | Final Static Water Level<br>**1169.8** Feet MSL | Surface Elevation<br>**1183.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable)
**6510**Feet ☒ N ☐ S **5078** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 3<br>6<br>9<br>12 | Blind drill to 24.5', See PZ-6D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| | | | 15 | | | | | | | | NP | NP | 5 | |
| | | | 18<br>21<br>24 | | | | | | | | | | | |
| | | | | End of Boring at 24.5 ft. | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. [illegible]

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

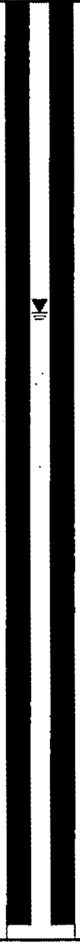
Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-6S**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Mike Kislow**
Date Drilling Started: **5/24/95**
Date Drilling Completed: **5/24/95**
Drilling Method: **4 1/4" HSA / 4" RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-6S**
Final Static Water Level: **1169.8** Feet MSL
Surface Elevation: **1182.0** Feet MSL
Borehole Diameter: **4.0** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable): **6510** Feet ☒ N ☐ S **5078** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | | Blind drill to 40.0', See PZ-6D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| | | | 3 | | | | | | | | | | | |
| | | | 6 | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | |
| | | | 12 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 33 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Gell

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

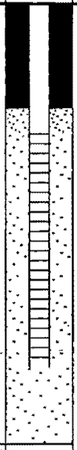
This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-6S** Use only as an attachment to Form 4400-122. Page **2** of **2**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39 | | | |  | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| | | | 45 | | | | | | | | | | | |
| | | | 48 | | | | | | | | NP | NP | 3 | |
| | | | 51 | | | | | | | | | | | |
| | | | | Sample for screened interval is from PZ-6D | | | | | | | | | | |
| | | | | End of Boring at 53 ft. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

# Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 3

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**PZ-6D** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**5/10/95** | Date Drilling Completed<br>**5/23/95** | Drilling Method<br>**4 1/4" HSA/ 4" RB** |

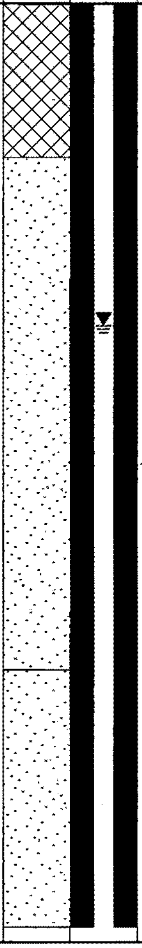
| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-6D** | Final Static Water Level<br>**1169.4** Feet MSL | Surface Elevation<br>**1182.0** Feet MSL | Borehole Diameter<br>**8.2 / 4** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**6510** Feet ☒ N ☐ S
**5078** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 1 | 8 | 3-3/4-4 | | FILL: Brown Medium to Fine Sand with traces of coarse Sand. First 4" has organics and high root content. Split spoon pounding on old rag. Some organics (roots etc.), piece of rag. | | | | 0 | 7 | | | | | M |
| 2 | 1 | 9-12-7-6 | 3 | | | | | 0.1 | 19 | | | | | M |
| 3 | 4 | 6-7-9-12 | | | | | | 0 | 16 | | | | | M |
| 4 | 10 | 6-35-24-37 | 6 | | SP | | | 0 | 59 | | | | | M |
| 5 | 12 | 9-12-12-12 | 9 | Medium Dense to Dense, Orangish-brown Medium to Fine SAND, Trace Silt and Gravel. | | | | 0 | 24 | | | | | M |
| 6 | 16 | 6-7-11-14 | | | | | | 0 | 18 | | | | | M |
| 7 | 16 | 8-9-12-12 | 12 | | | | | 0.4 | 21 | | | | | W |
| 8 | 20 | 3-4-12-12 | 15 | | | | | 0 | 16 | | | | | W |
| 9 | 24 | 0-3-7-15 | | | | | | 0 | 10 | | | | | W |
| 10 | 14 | 14-11-18-20 | 18 | | | | | 3.4 | 29 | | | | | W |
| 11 | 9 | 9-12-12-20 | 21 | | | | | 6.0 | 24 | | | | | W |
| 12 | NR | 12-14-17-20 | | | | | | | 31 | | | | | W |
| 13 | NR | 17-16-16-21 | 24 | Rock in tip of SS | | | | | 32 | | | | | W |
| 14 | 14 | 9-9-12-15 | 27 | Medium Dense to Very Dense, Grayish Fine to Coarse and Gravel, Trace Silt, Occasional to Numerous Cobbles and Boulders.<br>Rock in tip of SS. | SP | | | 31 | 21 | | | | | W |
| 15 | NR | 50-.3 | | | | | | | 50 | | | | | W |
| 16 | NR | 19-19-25-32 | 30 | | | | | | 44 | | | | | W |
| 17 | 9 | 47-37-27-39 | 33 | | | | | 6.0 | 64 | | | | | W |
| 18 | NR | 50-.3 | | | | | | | 50 | | | | | W |
| | | | 36 | | | | | | | | | | | |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature
John E.

Firm
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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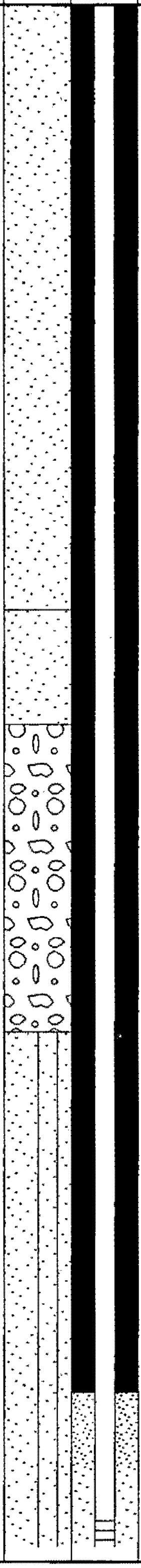
State of Wisconsin
Department of Natural Resources

**Soil Boring Log Information Supplement**
Form 4400-122A 7-91

Boring Number **PZ-6D** Use only as an attachment to Form 4400-122. Page **2** of **3**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 19 | 5 | 18-25-48-35 | | Rock in tip of SS | SP | | | 28.5 | 75 | | | | | W |
| 20 | NR | 11-15-25-37 | 39 | Dense to Very Dense, Brown SAND, Some Gravel, Trace Silt, Occasional to Numerous Cobbles and Boulders. | | | | | 40 | | | | | W |
| 21 | 13 | 33-33-45-47 | | | | | | 4.8 | 78 | | | | | W |
| 22 | 3 | 25-24-21-25 | 42 | | | | | 0.2 | 45 | | | | | W |
| 23 | NR | 50-.4 | 45 | | | | | | 50 | | | | | W |
| 24 | 8 | 17-17-17-19 | | | | | | 10 | 34 | | | | | W |
| 25 | 7 | 19-21-23-27 | 48 | | | | | 1.1 | 44 | | | | | W |
| 26 | 6 | 9-12-13-17 | 51 | | | | | 22 | 25 | | | | | W |
| 27 | NR | 32-50-.2 | | | | | | | 50 | | | | | |
| 28 | NR | 20-21-22-24 | 54 | | | | | | 43 | | | | | W |
| 29 | 8 | 4-8-20-24 | 57 | | | | | 3.3 | 28 | | | | | W |
| 30 | 10 | 20-25-13-21 | | | | | | 10 | 38 | | | | | W |
| 31 | NR | 16-50-.2 | 60 | Dense to Very Dense, Brown SAND, And Gravel, Trace Silt, Occasional to Numerous Cobbles and Boulders. | SP | | | | 50 | | | | | W |
| 32 | 2 | 14-19-21-24 | 63 | | | | | 0.6 | 40 | | | | | W |
| 33 | NR | 58-20-24-25 | | Very Dense, Brown GRAVEL, And Sand.<br>Lost 40 gal. of mud drilling 64'-66'<br>Rock in Tip of SS. | GW | | | | 44 | | | | | W |
| 34 | NR | 21-27-25-26 | 66 | | | | | | 52 | | | | | W |
| 35 | NR | 47-27-20-26 | 69 | | | | | | 47 | | | | | W |
| 36 | 4 | 30-29-28-32 | | | | | | 10.0 | 57 | | | | | W |
| 37 | NR | 42-31-33-26 | 72 | | | | | | 63 | | | | | W |
| 38 | NR | 43-50-.3 | 75 | | | | | | 50 | | | | | W |
| 39 | 3 | 56-50-.2 | | Very Dense, Brown Fine to Medium SAND, And Gravel, Little Silt, Occasional Cobbles and Boulders.<br>Rock in Tip of SS. | SP<br>SM | | | 36 | 50 | | | | | W |
| 40 | NR | 74-.3 | 78 | | | | | | 75 | | | | | W |
| 41 | 1 | 10-13-65-.3 | 81 | | | | | 1.1 | 78 | | | | | W |
| 42 | 4 | 74-50-.2 | | | | | | 7.1 | 50 | | | | | W |
| 43 | NR | 50-.3 | 84 | Rock in tip of SS. | | | | | 50 | | | | | W |
| 44 | 2 | 22-50-.3 | 87 | | | | | 10 | 50 | | | | | W |
| 45 | 4 | 65-50-.3 | | | | | | 2.1 | 50 | | | | | W |
| 46 | 1 | 100-.5 | 90 | | | | | 2.9 | 100 | | NP | NP | 9 | W |
| 47 | 2 | 95-50-.3 | 93 | | | | | ND | 50 | | | | | W |
| 48 | 1 | 42-100-.2 | | | | | | | 100 | | | | | W |
| | | | 96 | | | | | | | | | | | |

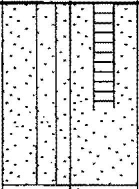


State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-6D** Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 49 | | | | | |  | | | | | | | | |
| 50 | | | 99 | | | | | | | | | | | |
| | | | 102 | | | | | | | | | | | |
| | | | | End of Boring at 103' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**MW-7** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**5/9/95** | Date Drilling Completed<br>**5/9/95** | Drilling Method<br>**4 1/4" HSA** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**MW-7** | Final Static Water Level<br>**1164.7** Feet MSL | Surface Elevation<br>**1197.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

| | | |
|---|---|---|
| Boring Location<br>State Plane N, E<br>**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W | Lat **91° 30' 22"**<br>Long **46° 00' 10"** | Local Grid Location (If applicable)<br>**5450** Feet ☒ N ☐ S **5393** Feet ☒ E ☐ W |

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21<br>24<br>27<br>30 | Blind drill to 33.5, See PZ-7D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| 1 | 2 | 50-.2 | 33<br>36 | Very Dense, Gray GRAVEL, And Sand, Little Silt | | | | 6.1 | 50 | | NP | NP | 5 | M/W |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. Goff

Firm
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **MW-7** Use only as an attachment to Form 4400-122. Page **2** of **2**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 2 | | 15-22-36-22 | 39<br>42 | | | | | 0.6 | 58 | | | | | W |
| | | | | End of Boring at 44.0 ft. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-7S**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Brad Davis**
Date Drilling Started: **5/4/95**
Date Drilling Completed: **5/9/95**
Drilling Method: **4 1/4" HSA / 4" RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-7S**
Final Static Water Level: **1164.6** Feet MSL
Surface Elevation: **1197.0** Feet MSL
Borehole Diameter: **4.0** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable)
**5450** Feet ☒ N ☐ S
**5393** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/, or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| | | | | Blind drill to 57 ft., See PZ-7D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| | | | 3 | | | | | | | | | | | |
| | | | 6 | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | |
| | | | 12 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | | Cobbles Noted During Drilling Below 22 ft. | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 33 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E.

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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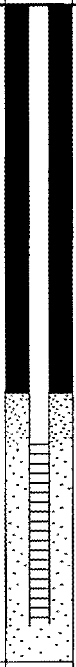
State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-7S** Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39 | | | |  | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| | | | 45 | | | | | | | | | | | |
| | | | 48 | | | | | | | | | | | |
| | | | 51 | | | | | | | | | | | |
| | | | 54 | | | | | | | | | | | |
| 1 | 3 | 103 | 57 | Very Dense,Gray SAND, And Gravel, Little Silt. | | | | 0.6 | | | | | | |
| 2 | 8 | 37-38-50-.3 | | | | | | 3.8 | | | NP | NP | 6 | |
| | | | 60 | | | | | | | | | | | |
| | | | | End of Boring at 61.5' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

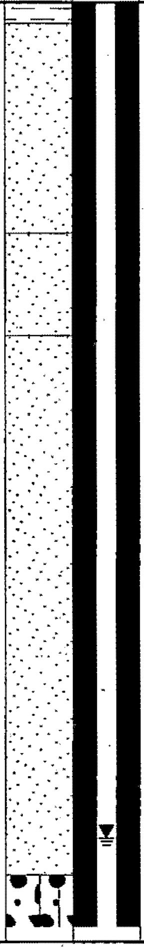
## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 3

| | | | | | |
|---|---|---|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | | License/Permit/Monitoring Number | | Boring Number<br>**PZ-7D** | |
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Joel Kramer** | | Date Drilling Started<br>**4/26/95** | Date Drilling Completed<br>**5/4/95** | Drilling Method<br>**4 1/4" HSA/4" RB** | |
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-7D** | Final Static Water Level<br>**1164.4** Feet MSL | Surface Elevation<br>**1197.0** Feet MSL | Borehole Diameter<br>**8.2 / 4** Inches |
| Boring Location<br>State Plane N, E<br>**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W | | Lat **91° 30' 22"**<br>Long **46° 00' 10"** | Local Grid Location (If applicable)<br>**5450**Feet ☒ N ☐ S<br>**5393** Feet ☒ E ☐ W | | |
| County<br>**Sawyer** | | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** | | |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 18 | 1000 | | Dark Brown Sandy TOPSOIL. | OL | | | .1 | 1 | | | | | M |
| | | | 3 | Meium Dense, Brown SAND, Little Gravel. | SP | | | | | | | | | |
| 2 | 21 | 7-10-11-16 | 6 | | | | | .4 | 21 | | | | | M |
| 3 | 22 | 3-3-4-6 | 9 | Loose, Light Brown SAND, Trace Gravel. | SP | | | .1 | 7 | | | | | M |
| | | | 12 | | | | | | | | | | | |
| 4 | 17 | 4-7-6-6 | 15 | Medium Dense, Brown Fine to Medium SAND, Little to Some Gravel, Trace Silt, Occasional to Numerous Cobbles and Boulders. | SP | | | ND | 13 | | | | | M |
| | | | 18 | | | | | | | | | | | |
| 5 | 17 | 4-6-9-10 | 21 | | | | | .1 | 15 | | | | | M |
| | | | | Cobble 23.5' to 23.8' | | | | | | | | | | |
| 6 | 12 | 4-39-50-.3 | 24 | | | | | .2 | 89 | | | | | M |
| | | | 27 | | | | | | | | | | | |
| 7 | 16 | 18-45-50-.3 | 30 | | | | | .3 | 95 | | | | | M |
| | | | 33 | 32.2' boulder - 34.1' | | | | | | | | | | |
| 8 | 12 | 45-38-20-20 | 36 | Very Dense, Gray Fine to Coarse | GP | | | 23 | 58 | | | | | W |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. Groff

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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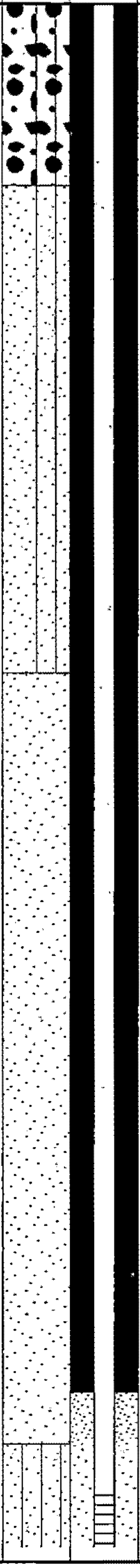
State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-7D** Use only as an attachment to Form 4400-122. Page 2 of 3

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 9 | 12 | 24-27-27-30 | 39 | GRAVEL, And Sand, Little Silt, Occasional Cobbles and Boulders. | GM | | | 6 | 54 | | | | | W |
| 10 | 8 | 3-42-50-.3 | 42 | | | | | 13 | 92 | | | | | W |
| | | | 45 | Dense to Very Dense, Brown to Gray SAND, And Gravel, Trace to Little Silt, Numerous Cobbles and Boulders. | SP<br>SM | | | | | | | | | |
| 11 | 14 | 28-35-40-40 | 48 | | | | | 62 | 75 | | | | | W |
| 12 | 8 | 8-7-33-41 | 51<br>54 | | | | | 300 | 40 | | | | | W |
| 13 | NR | 50-.3 | 57<br>60 | | | | | | 50 | | | | | W |
| 14 | 8 | 47-40-50-.2 | 63 | Very Dense, Gray to Brown SAND, And Gravel, Trace Silt, Numerous Cobbles and Boulders. | SP | | | 50 | 90 | | | | | W |
| 15 | NR | 50-.0 | 66<br>69 | | | | | | 50 | | | | | W |
| | | | | Boulder - 69.5' - 70.5' | | | | | | | | | | |
| 16 | NR | 50-.3 | 72 | Stone in Tip of SS | | | | | 50 | | | | | W |
| 17 | 2 | 50-.3 | 75<br>78 | | | | | 2.9 | 50 | | | | | W |
| 18 | NR | 50-.0 | 81<br>84 | | | | | | 50 | | | | | W |
| 19 | NR | 50-.0 | 87 | | | | | | 50 | | | | | W |
| | | | 90 | 89.5'-90.5' boulder | | | | | | | | | | |
| 20 | 6 | 55-50-.3 | 93<br>96 | Very Dense, Brown Silty SAND, Some Gravel, Occasional Cobbles. | SM | | | 5.8 | 50 | | | | | W |



State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-7D** Use only as an attachment to Form 4400-122. Page **3** of **3**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | | | | | | | | | NP | NP | 26 | |
| 21 | 4 | 35-50-.2 | | | | | | | 50 | | | | | W |
| 22 | 8 | 85-.0-.4 | 99 | | | | | 2.9 | 100 | | | | | W |
| | | | 102 | End of Boring at 102'. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

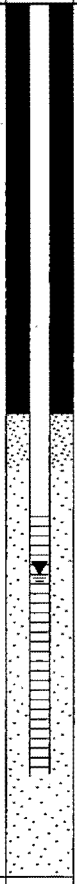
| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**MW-8** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Joel Kramer** | Date Drilling Started<br>**4/25/95** | Date Drilling Completed<br>**4/25/95** | Drilling Method<br>**HSA 4 1/4"** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**MW-8** | Final Static Water Level<br>**1164.7** Feet MSL | Surface Elevation<br>**1187.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable)
**5391** Feet ☒ N ☐ S **5873** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21 | Blind Drill to 23.0 ft., See PZ-8S and PZ-8D Boring Logs for Soil Descriptions. | | |  | | | | | | | |
| 1 | 15 | 10-20-24-26 | 24<br>27<br>30<br>33 | Dense, Brown Medium Grained SAND, Some Gravel Trace Silt. | | | | 2.9 | 44 | | NP | NP | 4 | W |
| | | | | End of Boring at 34.0' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature
John E.

Firm
SEH
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

# Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**PZ-8S** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**4/13/95** | Date Drilling Completed<br>**4/18/95** | Drilling Method<br>**4 1/4" HSA / 4" RB** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-8S** | Final Static Water Level<br>**1164.7** Feet MSL | Surface Elevation<br>**1187.0** Feet MSL | Borehole Diameter<br>**8.2 / 4** Inches |

| | | |
|---|---|---|
| Boring Location<br>State Plane N, E<br>**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W | Lat **91° 30' 22"**<br>Long **46° 00' 10"** | Local Grid Location (If applicable)<br>**5391** Feet ☒ N ☐ S **5873** Feet ☒ E ☐ W |

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 16 | 0-1-1-2 | | Dark Brown Sandy TOPSOIL. | OL | | | ND | 2 | | | | | M |
| | | | 3 | Loose to Medium Dense, Brown SAND, Trace Gravel. | SP | | | | | | | | | |
| 2 | 12 | 3-5-5-8 | 6 | | | | | ND | 10 | | | | | M |
| | | | 9 | | | | | | | | | | | |
| 3 | 18 | 4-8-13-31 | | | | | | 0.1 | 21 | | | | | M |
| | | | 12 | Medium Dense to Dense, Brown SAND, Some Gravel, Trace Silt, Occasional to Numerous Cobbles and Boulders. | SP | | | | | | | | | |
| 4 | 17 | 12-16-17-49 | 15 | | | | | 0.1 | 33 | | | | | M |
| | | | 18 | Boulder 17.5'-19' | | | | | | | | | | |
| 5 | 17 | 13-15-15-18 | 21 | | | | | 0.1 | 30 | | | | | M |
| | | | 24 | | | | | | | | | | | |
| 6 | 5 | 50-.4 | 27 | | | | | 0.2 | 50 | | | | | W |
| 7 | 9 | 29-16-33-25 | 30 | Dense, Fine GRAVEL. | GP | | | 1.0 | 49 | | | | | W |
| | | | | Dense to Very Dense, Brown SAND, Trace to Some Gravel, Trace to Little Silt, Occasional to Numerous Cobbles and Boulders. | SP | | | | | | | | | |
| 8 | 8 | 18-34-48-49 | 33 | | | | | 0.2 | 82 | | | | | W |
| | | | 36 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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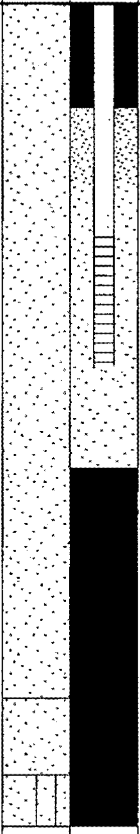
State of Wisconsin
Department of Natural Resources

**Soil Boring Log Information Supplement**
Form 4400-122A 7-91

Boring Number **PZ-8S** Use only as an attachment to Form 4400-122. Page **2** of **2**



| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 9 | 5 | 33-50-3 | 39 | | | | | 0.1 | 50 | | | | | W |
| 10 | 10 | 10-30-31-33 | 42<br>45 | | | | | 3.0 | 61 | | | | | W |
| 11 | 10 | 7-15-33-54 | 48 | | | | | 1.1 | 48 | | NP | NP | 7 | W |
| 12 | 5 | 38-50-.4 | 51<br>54 | | | | | 3.2 | 50 | | | | | W |
| 13 | 3 | 50-.4 | 57<br>60 | | | | | ND | 50 | | | | | W |
| 14 | 7 | 4-4-44-48 | 63 | Dense, Brown Fine to Medium SAND. | SP | | | ND | 46 | | | | | W |
| | | | 66 | Very Dense SAND, And Gravel, Little Silt, Numerous Cobbles and Boulders.<br>Boulder at 66.5'-67.8 | SP<br>SM | | | | | | | | | |
| | | | | End of Boring at 68.0' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 3

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-8D**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Joel Kramer**
Date Drilling Started: **4/19/95**
Date Drilling Completed: **4/25/95**
Drilling Method: **4 1/4" HSA / 4" RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-8D**
Final Static Water Level: **1164.4** Feet MSL
Surface Elevation: **1187.0** Feet MSL
Borehole Diameter: **8.2 / 4** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N, R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable): **5391** Feet ☒ N ☐ S **5873** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21<br>24<br>27<br>30<br>33<br>36 | Blind drill to 68.0, See PZ-8S Boring Log for Soil Descriptions. | | |  | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Gall

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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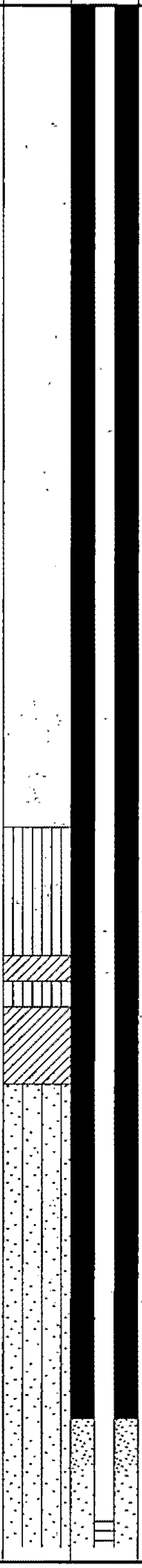
State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-8D** Use only as an attachment to Form 4400-122. Page **2** of **3**



| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39 | | | | | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| | | | 45 | | | | | | | | | | | |
| | | | 48 | | | | | | | | | | | |
| | | | 51 | | | | | | | | | | | |
| | | | 54 | | | | | | | | | | | |
| | | | 57 | | | | | | | | | | | |
| | | | 60 | | | | | | | | | | | |
| | | | 63 | | | | | | | | | | | |
| | | | 66 | | | | | | | | | | | |
| 1 | NR | 89 | 69 | Very Dense, Brown Clayey SILT, Some Sand, Little Gravel. | ML | | | | 89 | | | | | W |
| | | | 72 | | | | | | | | | | | |
| 2 | 22 | 37-45-44-50-.4 | | Light Green Lean CLAY, Trace Gravel. | CL | | | ND | 50 | | | | | W |
| | | | 75 | Greenish- brown micaceous SILT. | ML | | | | | | | | | |
| | | | | Hard, Gray Lean CLAY, Trace Sand. | CL | | | | | | | | | |
| 3 | 10 | 43-50-.3 | 78 | Very Dense, Brown Silty SAND, Little Gravel, Occasional Cobbles and Boulders. | SM | | | 1.2 | 88 | | | | | W |
| | | | 81 | | | | | | | | | | | |
| 4 | 13 | 22-38-50-.3 | 84 | | | | | 1.4 | 50 | | | | | W |
| | | | 87 | | | | | | | | | | | |
| 5 | 10 | 30-50-.5 | | | | | | 0.3 | 50 | | | | | W |
| | | | 90 | | | | | | | | | | | |
| 6 | 9 | 39-50-.3 | 93 | Less Silt Below 93 ft. | | | | 2.1 | 85 | | | | | W |
| | | | 96 | | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-8D** Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 7 | 20 | 32-40-45-50-.4 | | | | | | 1.9 | 50 | | NP | NP | 38 | W |
| 8 | 5 | 50-.4 | 99 | | | | | ND | | | | | | W |
| | | | | End of Boring at 101.0' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**MW-9** |

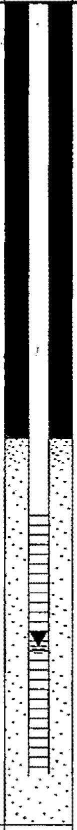
| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Joel Kramer** | Date Drilling Started<br>**4/12/95** | Date Drilling Completed<br>**4/12/95** | Drilling Method<br>**4 1/4" HSA** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**MW-9** | Final Static Water Level<br>**1161.9** Feet MSL | Surface Elevation<br>**1187.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**4790** Feet ☒ N ☐ S
**5139** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21 | Blind drill to 24.0 ft., See PZ-9D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| 1 | | | 24<br>27<br>30 | Brown, Poorly Graded Medium Grained SAND, Trace Gravel and Silt. | | | | ND | | | NP | NP | 2 | M/W |
| | | | | End of Boring at 32.0' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E.

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**PZ-9S** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Joel Kramer** | Date Drilling Started<br>**4/10/95** | Date Drilling Completed<br>**4/12/95** | Drilling Method<br>**4 1/4" HSA / 4"RB** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-9S** | Final Static Water Level<br>**1161.2** Feet MSL | Surface Elevation<br>**1187.0** Feet MSL | Borehole Diameter<br>**8.2 / 4** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**4790** Feet ☒ N ☐ S
**5139** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | | Blind drill to 52.0 ft., See PZ-9D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| | | | 3 | | | | | | | | | | | |
| | | | 6 | | | | | | | | | | | |
| | | | 9 | | | | | | | | | | | |
| | | | 12 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 30 | | | | | | | | | | | |
| | | | 33 | | | | | | | | | | | |
| | | | 36 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E.

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

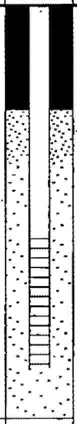
This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-9S** Use only as an attachment to Form 4400-122. Page **2** of **2**

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39<br>42 | | | |  | | | | | | | |
| 1 | 10 | 47-48-50-.4 | 45 | Very Dense, Brown Well Graded GRAVEL, And Sand, Little Silt. | | | | ND | 98 | | NP | NP | 7 | W |
| | | | 48<br>51 | | | | | | | | | | | |
| | | | | End of Boring at 52.0' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 3

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-9D**

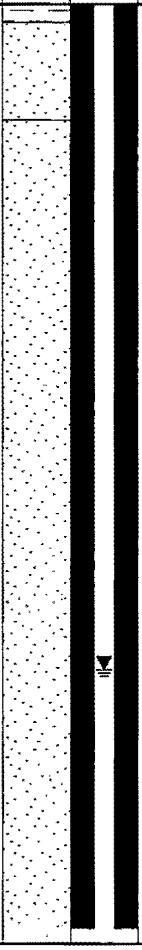
Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Jim Wolff**
Date Drilling Started: **3/30/95**
Date Drilling Completed: **4/7/95**
Drilling Method: **HSA 4 1/4" / 4"RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-9D**
Final Static Water Level: **1161.1** Feet MSL
Surface Elevation: **1187.0** Feet MSL
Borehole Diameter: **8.2 / 4** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable): **4790**Feet ☒ N ☐ S **5139** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 18 | 1-2-2-1 | | Dark Brown Sandy TOPSOIL. | OL | | | ND | 4 | | | | | M |
| | | | 3 | Loose, Brown Fine SAND, Trace Silt. | SP | | | | | | | | | |
| 2 | 15 | 2-4-5-12 | 6 | Loose to Dense, Brown SAND, Trace to Some Gravel, Trace Silt, Occasional Cobbles and Boulders. | SP | | | ND | 9 | | | | | M |
| 3 | 14 | 5-12-21-50-.2 | 9 | | | | | ND | 33 | | | | | M |
| | | | 12 | | | | | | | | | | | |
| 4 | 12 | 12-17-22-37 | 15 | | | | | ND | 39 | | | | | M |
| | | | 18 | | | | | | | | | | | |
| 5 | 14 | 10-17-22-22 | 21 | | | | | ND | 39 | | | | | M |
| 6 | 14 | 8-9-8-8 | 24 | | | | | 0.8 | 17 | | | | | M/W |
| | | | 27 | | | | | | | | | | | |
| 7 | 9 | 5-6-6-7 | 30 | | | | | ND | 12 | | | | | W |
| 8 | 6 | 3-4-4-5 | 33 | | | | | .1 | 8 | | | | | W |
| | | | 36 | | | | | | | | | | | |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Wolff

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

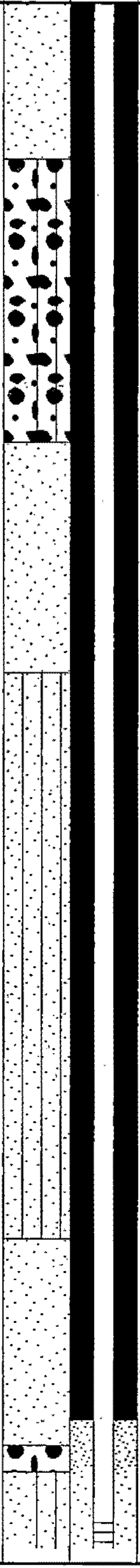
State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-9D** Use only as an attachment to Form 4400-122. Page 2 of 3

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 9 | 9 | 2-3-3-4 | 39 | | | | | 2.2 | 6 | | | | | W |
| 10 | NR | 50-0 | 42<br>45 | Very Dense, Brown to Gray GRAVEL, And Sand, Little Silt, Numerous Cobbles and Boulders. | GP<br>GM | | | | | | | | | W |
| 11 | 12 | 45-50-.2 | 48<br>51 | | | | | 1.0 | 50 | | | | | W |
| 12 | 13 | 11-47-50-.2 | | | | | | ND | 50 | | | | | W |
| | | | 54<br>57 | Very Dense, Brown to Gray SAND, And Gravel, Little Silt, Occasional Cobbles and Boulders. | SP | | | | | | | | | |
| 13 | NR | 50-0 | 60 | | | | | | | | | | | |
| 14 | 10 | 28-45-50-.3 | 63<br>66 | Medium Dense to Very Dense, Brownish-gray Silty SAND, Some Gravel, Occasional Cobbles. | SM | | | ND | 85 | | | | | W |
| 15 | 1 | 50-.2 | 69 | | | | | | 50 | | | | | W |
| 16 | 11 | 21-21-19-18 | 72<br>75 | | | | | ND | 40 | | | | | W |
| 17 | 18 | 14-12-8-10 | 78<br>81 | | | | | 2.3 | 20 | | | | | W |
| 18 | 16 | 15-19-30-50 | | | | | | 0.7 | 49 | | | | | W |
| | | | 84<br>87 | Very Dense, Reddish-brown Medium Grained SAND, Little Gravel, Trace Silt and Clay. | SP | | | | | | | | | |
| 19 | NR | 50-.3 | 90 | | | | | | | | | | | |
| 20 | 14 | 25-40-50-.3 | 93<br>96 | Very Dense, Blackish- gray GRAVEL, Some Sand.<br>Very Dense, Reddish-brown Fine to | GP<br>SP<br>SM | | | 0.1 | 90 | | | | | W |

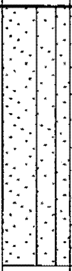
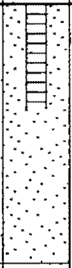


State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-9D** Use only as an attachment to Form 4400-122. Page 3 of 3

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 21 | 10 | 18-39-50-.3 | 99<br>102<br>105 | Medium Grained SAND, Some Gravel, Little Silt, Occasional Cobbles. | |  |  | 0.4 | 89 | | NP | NP | 9 | W |
| | | | | End of Boring at 106.0' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

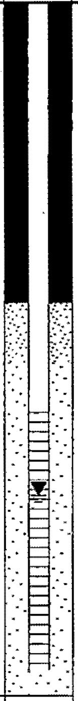
Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **MW-10**
Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Joel Kramer**
Date Drilling Started: **3/30/95**
Date Drilling Completed: **3/30/95**
Drilling Method: **HSA 4 1/4"**
DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **MW-10**
Final Static Water Level: **1157.8** Feet MSL
Surface Elevation: **1177.0** Feet MSL
Borehole Diameter: **8.2** Inches
Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable): **4104** Feet ☒ N ☐ S **5380** Feet ☒ E ☐ W
County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| | | | 3<br>6<br>9<br>12<br>15<br>18 | Blind drill to 27.0 ft., See PZ-10D Boring Log for Soil Descriptions. | | |  | | | | | | | |
| 1 | 12 | 2-3-2-4 | 21<br>24<br>27 | Loose, Brown Fine to Medium Grained SAND, Little Silt, Trace Gravel. | | | | | 5 | | NP | NP | 5 | W |
| | | | | End of Boring at 27.0' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Guff

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 2

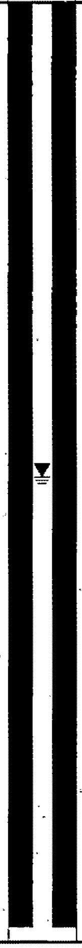
Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **PZ-10S**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Joel Kramer**
Date Drilling Started: **3/29/95**
Date Drilling Completed: **3/29/95**
Drilling Method: **4 1/4" HSA / 4" RB**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **PZ-10S**
Final Static Water Level: **1158.5** Feet MSL
Surface Elevation: **1177.0** Feet MSL
Borehole Diameter: **8.2 / 4** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable): **4104** Feet ☒ N ☐ S **5380** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| | | | 3<br>6<br>9<br>12<br>15<br>18<br>21<br>24<br>27<br>30<br>33<br>36 | Blind drill to 45.0 ft., See PZ-10d Boring Log for Soil Descriptions. | | |  | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E.

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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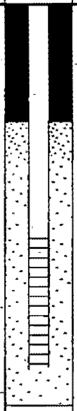
State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **PZ-10S** Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| | | | 39 | | | |  | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| 1 | 10 | 15-19-42-23 | 45 | Very Dense, Brown Silty SAND, Some Gravel. | | | | | 42 | | NP | NP | 41 | W |
| | | | 48 | | | | | | | | | | | |
| | | | 51 | End of Boring at 51.3' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information
Form 4400-122 7-91

Page 1 of 3

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**PZ-10D** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**3/17/95** | Date Drilling Completed<br>**3/28/95** | Drilling Method<br>**4 1/4" HSA / 6" RB** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**PZ-10D** | Final Static Water Level<br>**1157.8** Feet MSL | Surface Elevation<br>**1177.0** Feet MSL | Borehole Diameter<br>**8.2 / 6** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**4104** Feet ☒ N ☐ S **5380** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 17 | 5-3-2-3 | | Black TOPSOIL. | OL | | | ND | 5 | | | | | M |
| 2 | 18 | 3-4-5-6 | 3 | Loose to Medium Dense, Brown SAND, Little Gravel. | SP | | | ND | 9 | | | | | M |
| 3 | 16 | 3-6-7-12 | | | | | | ND | 13 | | | | | M |
| 4 | 15 | 4-7-8-6 | 6 | | | | | ND | 15 | | | | | M |
| 5 | 9 | 4-9-10-10 | 9 | | | | | ND | 19 | | | | | M |
| 6 | 12 | 5-6-6-6 | | Medium Dense, Brown Fine SAND | SP | | | ND | 12 | | | | | M |
| 7 | 14 | 4-7-15-21 | 12 | | | | | ND | 22 | | | | | M |
| 8 | 15 | 7-12-10-14 | 15 | Medium Dense, Brown SAND, Trace to Little and Silt, Occasional Cobbles | SP<br>SM | | | ND | 22 | | | | | M |
| 9 | 18 | 9-10-13-14 | | | | | | ND | 23 | | | | | M |
| 10 | 14 | 4-10-12-12 | 18 | | | | | 0.2 | 22 | | | | | M/W |
| 11 | 19 | 4-6-10-10 | 21 | | | | | ND | 16 | | | | | W |
| 12 | 11 | 3-8-15-17 | | | | | | ND | 23 | | | | | W |
| 13 | 0 | 23-17-12-9 | 24 | | | | | | 29 | | | | | W |
| 14 | 2 | 12-7-6-5 | 27 | Medium Dense, Brown Sandy SILT | ML | | | ND | 13 | | | | | W |
| 15 | 7 | 4-3-4-4 | | Very Loose to Medium Dense, Brown Silty SAND; some Gravel, Occasional Cobbles | SM | | | ND | 7 | | | | | W |
| 16 | 12 | 8-3-1-2 | 30 | | | | | ND | 4 | | | | | W |
| 17 | 1 | 8-3-3-3 | 33 | | | | | ND | 6 | | | | | W |
| 18 | 19 | 4-1-0-1 | | | | | | ND | 1 | | | | | W |
| | | | 36 | | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E.

Firm
SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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Boring Number **PZ-10D** Use only as an attachment to Form 4400-122. Page 2 of 3

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 19 | 0 | 9-4-6-8 | | | | | | | 10 | | | | | W |
| 20 | 11 | 11-6-8-9 | 39 | | | | | ND | 14 | | | | | W |
| 21 | 14 | 18-19-20-27 | | Very Loose to Medium Dense, Brown Silty SAND; Some Gravel, Occasional Cobbles | SM | | | ND | 39 | | | | | W |
| 22 | 10 | 13-28-26-25 | 42 | | SM | | | ND | 54 | | | | | W |
| 23 | 10 | 11-10-8-8 | 45 | Medium Dense, Brown Silty Sand, Some Gravel, Occasional Cobbles and Boulders | | | | ND | 18 | | | | | W |
| 24 | 6 | 7-5-14-22 | | | | | | ND | 19 | | | | | W |
| 25 | 6 | 40-50-.3 | 48 | Very Dense, Brown Silty SAND, Some Gravel, Occasional to Numerous Cobbles and Boulders. | SM | | | ND | 50 | | | | | W |
| 26 | 7 | 50-.6 | 51 | | | | | ND | 50 | | | | | |
| 27 | 4 | 50-.4 | | | | | | ND | 50 | | | | | |
| 28 | 5 | 50-.4 | 54 | | | | | ND | 50 | | | | | |
| 29 | 4 | 50-.4 | 57 | | | | | ND | 50 | | | | | |
| 30 | 4 | 50-.4 | | | | | | ND | 50 | | | | | |
| 31 | 8 | 26-50-.3 | 60 | | | | | ND | 50 | | | | | |
| 32 | 11 | 50-44-50-14 | 63 | Very Dense, Brownish-red Clayey Silty Sand, Little Gravel, Occasional Cobbles and Boulders. | SM | | | 6 | 50 | | | | | W |
| 33 | 10 | 38-50 | | | SC | | | 19 | 50 | | | | | W |
| 34 | 5 | 50-5 | 66 | | | | | 5 | 50 | | | | | |
| 35 | 5 | 50-.4 | 69 | a/o | | | | 8 | 50 | | | | | |
| 36 | 6 | 45-50 | | | | | | 12 | 50 | | | | | |
| 37 | 7 | 44-50 | 72 | | | | | 18 | 50 | | | | | |
| 38 | 18 | 24-44-50 | 75 | | | | | 48 | 50 | | | | | |
| 39 | 16 | 27-48-50 | | | | | | 48 | 50 | | | | | |
| 40 | | 20-38-50-15 | 78 | Very Dense, Gray Clayey, Sandy SILT, Little Gravel. | ML | | | 10 | 88 | | | | | |
| 41 | 15 | 25-37-50-.4 | 81 | | | | | ND | 57 | | | | | W |
| 42 | 15 | 43-50-.3 | | | | | | ND | 50 | | | | | W |
| 43 | 4 | 50-.4 | 84 | Very Dense, Brown Fine to Medium Grained Silty SAND, Some Gravel, Occasional to Numerous Cobbles and Boulders. | SM | | | ND | 50 | | | | | W |
| 44 | 4 | 50-.4 | 87 | | | | | ND | 50 | | | | | W |
| 45 | NR | 50-.0 | | | | | | | 50 | | | | | W |
| 46 | NR | 50-.2 | 90 | | | | | | 50 | | | | | W |
| 47 | NR | 50-.2 | 93 | | | | | | 50 | | | | | W |
| 48 | NR | 50-.4 | 96 | Medium Dense to Very Dense, Dark Brown to Grayish Black Silty SAND, | SM | | | | 50 | | | | | W |

State of Wisconsin
Department of Natural Resources

## Soil Boring Log Information Supplement

Form 4400-122A 7-91

Boring Number **PZ-10D** Use only as an attachment to Form 4400-122. Page **3** of **3**

| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 49 | 10 | 17-24-50-.2 | | Some Gravel, Occasional Cobbles and Boulders. | | | | .2 | 74 | | NP | NP | 5 | W |
| 50 | 8 | 4-1-15-21 | 99 | | | | | .1 | 16 | | | | | W |
| | | | 102 | End of Boring at 102.0' | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

# Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

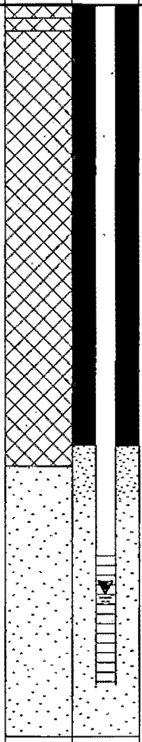
Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **B-1**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Mike Kislow**
Date Drilling Started: **5/25/95**
Date Drilling Completed: **5/25/95**
Drilling Method: **4 1/4" HSA**

DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **B-1**
Final Static Water Level: **1175.0** Feet MSL
Surface Elevation: **1198.0** Feet MSL
Borehole Diameter: **8.2** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable)
**7297** Feet ☒ N ☐ S
**5292** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**



| Sample Number | Sample Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties: Standard Penetration | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plastic Limit | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 3-7-11-18 | | Brown Clayey TOPSOIL | | | | | 18 | | | | | M |
| 2 | 16 | 11-16-16-13 | 3 | FILL: Brown to Gray Lean Clay, Little Sand and Gravel. | | | | | 22 | | | | | M |
| 3 | 15 | 3-9-7-6 | | FILL: Refuse with Sand Layers | | | | | 16 | | | | | M |
| 4 | 10 | 5-9-6-5 | 6 | | | | | | 15 | | | | | M |
| 5 | 1 | 8-5-5-5 | 9 | | | | | | 10 | | | | | M |
| 6 | 5 | 2-6-9-18 | | | | | | | 15 | | | | | M |
| 7 | 7 | 8-9-7-5 | 12 | | | | | | 16 | | | | | M |
| 8 | 0 | 25-50-.2 | 15 | | | | | | 50 | | | | | M |
| 9 | 1 | 50-.3 | | | | | | | 50 | | | | | M |
| 10 | 22 | 6-18-25-25 | 18 | Dense to Very Dense, Brown SAND, Little Gravel and Silt. | SP | | | | | | | | | |
| 11 | 10 | 25-24-20-17 | 21 | | | | | | 44 | | | | | M |
| 12 | 10 | 9-25-33-17 | | | | | | | | | | | | W |
| | | | 24 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | | End of Boring at 28.5 ft. | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Huff

Firm: SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

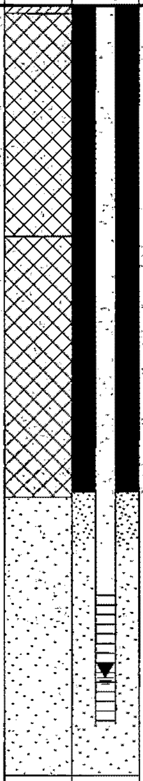
## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **B-2**
Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Mike Kislow**
Date Drilling Started: **5/26/95**
Date Drilling Completed: **5/26/95**
Drilling Method: **4 1/4" HSA**
DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **B-2**
Final Static Water Level: **1174.8** Feet MSL
Surface Elevation: **1201.0** Feet MSL
Borehole Diameter: **8.2** Inches
Boring Location
State Plane N, E
Lat **91° 30' 22"**
Long **46° 00' 10"**
**SW** 1/4 of **SW** 1/4 of Section **28** T **14** N,R **9** W
Local Grid Location (If applicable): **7125** Feet ☒ N ☐ S **5424** Feet ☒ E ☐ W
County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample Number | Sample Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties Standard Penetration | Soil Properties Moisture Content | Soil Properties Liquid Limit | Soil Properties Plastic Limit | Soil Properties P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9 | 3-4-5-4 | | FILL: Brown Lean Clay, Little Sand. | CL | | | | 9 | | | | | M |
| 2 | 12 | 12-24-21-12 | 3 | FILL: Brown Sand, Little Gravel, trace Silt. | | | | | 45 | | | | | M |
| 3 | 18 | 2-2-3-2 | | | | | | | 5 | | | | | M |
| 4 | 15 | 2-3-3-5 | 6 | | | | | | 6 | | | | | M |
| 5 | 14 | 2-2-1-2 | 9 | FILL: Refuse with Sand Layers. | | | | | 3 | | | | | M |
| | | | 12 | | | | | | | | | | | |
| 6 | NR | 6-6-5-7 | | | | | | | 11 | | | | | M |
| 7 | 4 | 3-5-8-6 | 15 | | | | | | 13 | | | | | M |
| 8 | 16 | 10-8-17-19 | 18 | | | | | | 25 | | | | | M |
| 9 | 19 | 9-13-17-20 | | Medium Dense to Dense, Brown SAND, Little Gravel, Trace Silt. | SP | | | | 30 | | | | | M |
| 10 | 18 | 9-13-17-21 | 21 | | | | | | 30 | | | | | M |
| 11 | 19 | 10-13-17-16 | 24 | | | | | | | | | | | M |
| | | | 27 | | | | | | | | | | | |
| | | | 30 | End of Boring at 30.0 ft. | | | | | | | | | | |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. Gull

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

|  |  |  |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**B-3** |

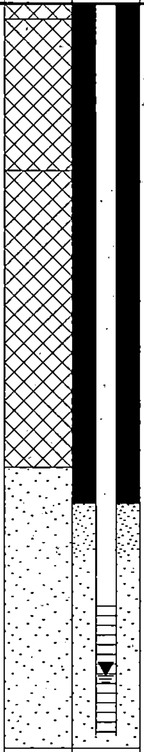
|  |  |  |  |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**5/30/95** | Date Drilling Completed<br>**5/30/95** | Drilling Method<br>**4 1/4" HSA** |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**B-3** | Final Static Water Level<br>**1171.8** Feet MSL | Surface Elevation<br>**1198.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**6942**Feet ☒ N ☐ S **5440** Feet ☒ E ☐ W

|  |  |  |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample |  |  |  |  |  |  |  |  | Soil Properties |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 13 | 1-3-36-6 |  | FILL: Brown Lean Clay, Little Sand and Gravel. |  |  |  |  | 39 |  |  |  |  | M |
| 2 | 14 | 4-9-12-12 | 3 | FILL: Brown Sand, Little Gravel. |  |  |  |  | 21 |  |  |  |  | M |
| 3 | 19 | 3-9-10-10 |  |  |  |  |  |  | 19 |  |  |  |  | M |
| 4 | 16 | 4-5-4-5 | 6 | FILL: Refuse with Sand Layers. |  |  |  |  | 9 |  |  |  |  | M |
|  |  |  | 9 |  |  |  |  |  |  |  |  |  |  |  |
| 5 | 7 | 12-5-5-7 | 12 |  |  |  |  |  | 10 |  |  |  |  | M |
|  |  |  | 15 |  |  |  |  |  |  |  |  |  |  |  |
| 6 | 1 | 6-3-4-7 |  |  |  |  |  |  | 7 |  |  |  |  | M |
| 7 | 14 | 4-3-5-6 | 18 | Medium Dense, Brown SAND, Little Gravel, Trace Silt. | SP |  |  |  | 8 |  |  |  |  | M |
| 8 | 12 | 8-8-6-5 | 21 |  |  |  |  |  | 14 |  |  |  |  | M |
| 9 | 17 | 4-5-6-8 |  |  |  |  |  |  | 11 |  |  |  |  | M |
| 10 | 17 | 5-11-15-18 | 24 |  |  |  |  |  | 26 |  |  |  |  | M/W |
|  |  |  | 27 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | End of boring at 29.0 ft. |  |  |  |  |  |  |  |  |  |  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. [illegible]

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

**Soil Boring Log Information**
Form 4400-122 7-91

Page 1 of 1

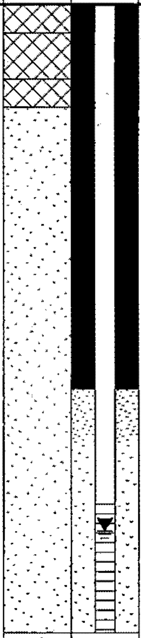
| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**B-4** |

| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**5/30/95** | Date Drilling Completed<br>**5/30/95** | Drilling Method<br>**4 1/4" HSA** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**B-4** | Final Static Water Level<br>**1169.5** Feet MSL | Surface Elevation<br>**1190.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**
Local Grid Location (If applicable)
**6564** Feet ☒ N ☐ S
**5278** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |

| Sample | | | | | | | | | Soil Properties | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 19 | 8-20-13-19 | | FILL: Brown Lean Clay, Little Sand and Gravel. | |  | | | 33 | | | | | M |
| 2 | 15 | 8-12-13-11 | 3 | FILL: Brown Sand, Little Gravel, Trace Silt. | | | | | 25 | | | | | M |
| 3 | 15 | 12-13-15-14 | | FILL: Refuse with Sand Layers. | SP | | | | 28 | | | | | M |
| 4 | 16 | 8-14-19-22 | 6 | Medium Dense to Dense, Brown to Dark Brown SAND, Little to Some Gravel, Trace Silt. | | | | | 33 | | | | | M |
| 5 | 15 | 3-6-13-18 | 9 | | | | | | 19 | | | | | VM |
| 6 | 14 | 11-10-12-11 | | | | | | | 22 | | | | | VM |
| 7 | 11 | 6-8-7-6 | 12 | | | | | | 15 | | | | | VM |
| 8 | 20 | 3-4-4-7 | 15 | | | | | | 8 | | | | | VM |
| 9 | 18 | 5-12-11-12 | | | | | | | 23 | | | | | VM |
| 10 | 17 | 4-10-13-12 | 18 | | | | | | 23 | | | | | VM |
| 11 | 9 | 17-15-15-17 | 21 | | | | | | 30 | | | | | W |
| | | | 24 | | | | | | | | | | | |
| | | | | End of Boring at 24.5 ft. | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| | |
|---|---|
| Signature<br>John E. Guld | Firm<br>SEH<br>421 Frenette Drive, Chippewa Falls, WI.<br>Tel: 715-720-6200, Fax: 715-720-6300 |

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

Facility/Project Name: **HAYWARD LANDFILL - ECA**
License/Permit/Monitoring Number:
Boring Number: **B-5**

Boring Drilled By (Firm name and name of crew chief): **Huntingdon Engineering & Environmental; Brad Davis**
Date Drilling Started: **5/30/95**
Date Drilling Completed: **5/30/95**
Drilling Method: **4 1/4" HSA**

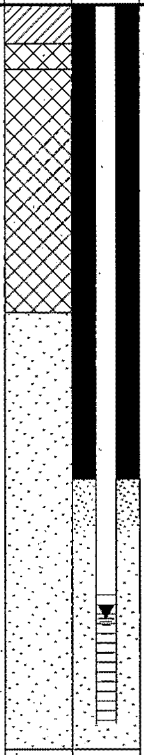
DNR Facility Well No.:
WI Unique Well No.:
Common Well Name: **B-5**
Final Static Water Level: **1169.1** Feet MSL
Surface Elevation: **1193.0** Feet MSL
Borehole Diameter: **8.2** Inches

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**6489** Feet ☒ N ☐ S
**5478** Feet ☒ E ☐ W

County: **Sawyer**
DNR County Code: **58**
Civil Town/City/ or Village: **Hayward**

| Sample | | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Soil Properties | | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | | | | | | | | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | |
| 1 | 19 | 3-4-8-8 | | FILL: Grayish-brown Clay, Some Sand Trace Gravel. | CL | | | | 12 | | | | | M |
| 2 | 15 | 5-4-5-4 | 3 | FILL: Brown Sand, Little Gravel, Trace Silt. | | | | | 9 | | | | | M |
| 3 | 14 | 3-4-5-7 | | | | | | | 9 | | | | | M |
| 4 | 14 | 5-8-15-17 | 6 | FILL: Refuse with Sand Layers. | | | | | 23 | | | | | M |
| 5 | 15 | 5-5-5-5 | 9 | | | | | | 10 | | | | | VM |
| 6 | 9 | 3-4-18-18 | | | | | | | 22 | | | | | M |
| 7 | 18 | 3-4-5-7 | 12 | Loose to Medium Dense, Brown SAND, Trace to Some Gravel, Trace Silt. | SP | | | | 9 | | | | | M |
| 8 | 19 | 2-4-5-6 | 15 | | | | | | 9 | | | | | M |
| 9 | 15 | 5-5-8-10 | | | | | | | 13 | | | | | M |
| 10 | 16 | 8-8-10-17 | 18 | | | | | | 18 | | | | | M |
| 11 | 5 | 13-14-12-15 | 21 | | | | | | 26 | | | | | M |
| 12 | 10 | 10-9-10-10 | | | | | | | 19 | | | | | M/W |
| | | | 24 | | | | | | | | | | | |
| | | | | Occasional Cobbles Below 25 ft. | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | | End of Boring at 29.0 ft. | | | | | | | | | | |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E.

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

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State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste
☐ Emergency Response
☐ Wastewater
☐ Haz. Waste
☐ Underground Tanks
☐ Water Resources
☐ Other

## Soil Boring Log Information

Form 4400-122 7-91

Page 1 of 1

| | | |
|---|---|---|
| Facility/Project Name<br>**HAYWARD LANDFILL - ECA** | License/Permit/Monitoring Number | Boring Number<br>**B-6** |

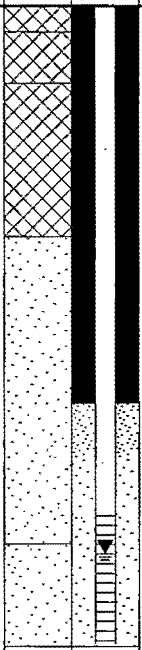
| | | | |
|---|---|---|---|
| Boring Drilled By (Firm name and name of crew chief)<br>**Huntingdon Engineering & Environmental; Brad Davis** | Date Drilling Started<br>**5/31/95** | Date Drilling Completed<br>**5/31/95** | Drilling Method<br>**4 1/4" HSA** |

| | | | | | |
|---|---|---|---|---|---|
| DNR Facility Well No. | WI Unique Well No. | Common Well Name<br>**B-6** | Final Static Water Level<br>**1168.6** Feet MSL | Surface Elevation<br>**1190.0** Feet MSL | Borehole Diameter<br>**8.2** Inches |

Boring Location
State Plane N, E
**SW** 1/4 of **SW** 1/4 of Section **28** T **41** N,R **9** W
Lat **91° 30' 22"**
Long **46° 00' 10"**

Local Grid Location (If applicable)
**6258** Feet ☒ N ☐ S **5305** Feet ☒ E ☐ W

| | | |
|---|---|---|
| County<br>**Sawyer** | DNR County Code<br>**58** | Civil Town/City/ or Village<br>**Hayward** |



| Sample | | | | | | | | | Soil Properties | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | Length (in) Recovered | Blow Counts | Depth In Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | U S C S | Graphic Log | Well Diagram | PID/FID | Standard Penetration | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
| 1 | 20 | 3-7-18-22 | | FILL: Brown Lean CLAY, Little Sand and Gravel. | | | | | 25 | | | | | M |
| 2 | 16 | 8-20-22-34 | 3 | FILL: Brown SAND, Little Gravel, Trace Silt. | | | | | 42 | | | | | M |
| 3 | 3 | 26-20-15-6 | | | | | | | 35 | | | | | M |
| 4 | 1 | 20-12-6-19 | 6 | FILL: Wood Mixed with Sand. | | | | | 18 | | | | | M |
| 5 | 13 | 10-12-16-18 | 9 | | | | | | 28 | | | | | M |
| 6 | 9 | 8-10-3-3 | | Loose to Medium Dense, Brown SAND, Little Gravel, Trace Silt. | SP | | | | 13 | | | | | M |
| 7 | 0 | 6-15-13-12 | 12 | | | | | | 28 | | | | | M |
| 8 | 16 | 4-3-4-5 | 15 | | | | | | 7 | | | | | M |
| 9 | 15 | 6-9-8-7 | | | | | | | 17 | | | | | M |
| 10 | 16 | 3-6-9-10 | 18 | | | | | | 15 | | | | | M |
| 11 | 18 | 6-18-18-21 | 21 | | | | | | 36 | | | | | M/W |
| | | | 24 | Dense, Orange-brown SAND, Some Gravel, Trace Silt. | SP | | | | | | | | | |
| | | | | End of Boring at 25.0 ft. | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature John E. Ga

Firm SEH
421 Frenette Drive, Chippewa Falls, WI.
Tel: 715-720-6200, Fax: 715-720-6300

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

# Appendix E

## Well Information Forms

State of Wisconsin
Department of Natural Resources

# GROUNDWATER MONITORING WELL INFORMATION FORM

Chapter 144, Wis. Stats.
Form 4400-89
Rev. 1-90

| Facility Name | Facility ID Number | Date | Completed By (Name and Firm) |
|---|---|---|---|
| Hayward Landfill | 01751 | 08/10/95 | John Guhl - Short Elliott Hendrickson |

| Well Name | DNR Well ID Number | Well Location | N | S | E | W | Date Established | Well Casing |  | Elevations |  | Reference |  | Screen Length | Well Depth | Type of Well (√) |  |  |  |  |  | Enf. Stds Apply | Gradient U, S, D or N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | Diam. | Type | Top of Well Casing | Ground Surface | MSL (√) | Site Datum (√) |  |  | PIEZ | OW | PW | LYS | Other | Aban-doned |  |  |
| PZ-1S |  | 5851 | X |  |  |  | 3-17-95 | 2" | P | 1187.85 | 1185' | X |  | 5.0' | 50.0 | X |  |  |  |  |  |  | D |
|  |  | 5454 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-1D |  | 5851 | X |  |  |  | 3-14-95 | 2 | P | 1187.93 | 1185 | X |  | 5.0 | 100.0 | X |  |  |  |  |  |  | D |
|  |  | 5454 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MW-6 |  | 6510 | X |  |  |  | 5-25-95 | 2 | P | 1185.11 | 1183 | X |  | 10.0 | 20.0 |  | X |  |  |  |  |  | S |
|  |  | 5078 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-6S |  | 6510 | X |  |  |  | 5-24-95 | 2 | P | 1184.70 | 1182 | X |  | 5.0 | 50.0 | X |  |  |  |  |  |  | S |
|  |  | 5078 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-6D |  | 6510 | X |  |  |  | 5-23-95 | 2 | P | 1184.65 | 1182 | X |  | 5.0 | 99.5 | X |  |  |  |  |  |  | S |
|  |  | 5078 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MW-7 |  | 5450 | X |  |  |  | 5-9-95 | 2 | P | 1199.70 | 1197 | X |  | 10.0 | 39.5 |  | X |  |  |  |  | X | D |
|  |  | 5393 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-7S |  | 5450 | X |  |  |  | 5-9-95 | 2 | P | 1199.67 | 1197 | X |  | 5.0 | 59.5 | X |  |  |  |  |  | X | D |
|  |  | 5393 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-7D |  | 5450 | X |  |  |  | 5-4-95 | 2 | P | 1199.48 | 1197 | X |  | 5.0 | 100.0 | X |  |  |  |  |  | X | D |
|  |  | 5393 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MW-8 |  | 5391 | X |  |  |  | 4-25-95 | 2 | P | 1189.34 | 1187 | X |  | 10.0 | 30.0 |  | X |  |  |  |  | X | D |
|  |  | 5873 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-8S |  | 5391 | X |  |  |  | 4-18-95 | 2 | P | 1189.27 | 1187 | X |  | 5.0 | 50.0 | X |  |  |  |  |  | X | D |
|  |  | 5873 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PZ-8D |  | 5391 | X |  |  |  | 4-25-95 | 2 | P | 1189.30 | 1187 | X |  | 5.0 | 100.0 | X |  |  |  |  |  | X | D |
|  |  | 5873 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MW-9 |  | 4790 | X |  |  |  | 4-12-95 | 2 | P | 1189.06 | 1187 | X |  | 10.0 | 30.0 |  | X |  |  |  |  | X | D |
|  |  | 5139 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Location Coordinates Are:

☒ Local Grid System (preferred)
☐ State Plane Coordinate
☐ Northern
☐ Central

Remarks:

PSS Use:

File Maint. Completed:

Other:

ATTACHMENT C

# INSTRUCTIONS FOR GROUNDWATER MONITORING
# WELL INFORMATION - FORM 4400-89

This form, when completed provides a record of information for each well that is part of a facility's groundwater monitoring program. It provides the facility or consultant with a means of presenting in a consistent format the well data which the department requires during a site review process. It should be updated as new wells are added to the monitoring program.

Each element of the form is described below. Complete the form with the necessary information, using the description of the elements as a guide.

Facility ID Number: The license number or identification number of the facility, asssigned by the Department.
Date: The date on which the form is filled out.
Completed By: The name and firm of person completing the form.
Facility Name: The name of the site or landfill.

Well Name: The name given to the well by the facility or consultant; e.g. MW-2, OW-5.
DNR Number: The number assigned to the well by the Department, for use by the Department.

Well Location: The location of the well, measured in feet, in relation to a grid system origin established for the site or state plane coordinate system. (A local grid system is preferred.)

Date Established: The installation date of the well.

Well Casing Diam.: The inside diameter of the pipe used in the well construction, in inches.
Well Casing Type: The type of pipe used: plastic (P), steel (S), or other (O).

Elevations:

Top of Well Casing: The measurement, in feet, of the top of the well casing (not top of protective casing), in feet.
Ground Surface: The measurement, in feet, of the ground surface adjacant to the well.
Reference: Are elevations in reference to Mean Sea Level (MSL) or to a particular site datum established by consultant or facility? Check one or the other.

Screen Length: The length of the screen measured in feet.

Well Depth: The depth of the well from the top of well casing, measured in feet.

Type of Well:

| | | | |
|---|---|---|---|
| PIEZ: | piezometer (sealed below water table) | Abandoned: | Check this box if the well has been abandoned. |
| OW: | water table observation well | | |
| PVT | private well | Enf. Stds. Apply: | Check this box if enforcement standards apply (well is outside DMZ or property line). |
| LYS: | lysimeter | | |
| OTHER: | not any of the above. e.g. head well. | | |

Gradient: The location of the well in the groundwater flow system relative to the disposal site, spill, etc. Use one of the four letters designated below:

U = up gradient D = down gradient
S = side gradient N = not known

---

Location Coordinates Are:

Local grid system, established by consultant and submitted to the Department; or State Plane Coordinate System, an established location system for Wisconsin.

Comments.

Add any comments to help clarify items listed above; e.g. MW-17 was abandoned on 1/24/90 and replaced by MW-17R. LHW-1 and LHW-2 are leachate head wells.

State of Wisconsin
Department of Natural Resources

# GROUNDWATER MONITORING WELL INFORMATION FORM

Chapter 144, Wis. Stats.
Form 4400-89
Rev. 1-90

| Facility Name | Facility ID Number | Date | Completed By (Name and Firm) |
|---|---|---|---|
| Hayward Landfill | 01751 | 08/10/95 | John Guhl - Short Elliott Hendrickson |

| Well Name | DNR Well ID Number | Well Location | N | S | E | W | Date Established | Well Casing Diam. | Well Casing Type | Elevations Top of Well Casing | Elevations Ground Surface | Reference MSL (√) | Reference Site Datum (√) | Screen Length | Well Depth | PIEZ | OW | PW | LYS | Other | Abandoned | Enf. Stds Apply | Gradient U, S, D or N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PZ-9S | | 4790 | X | | | | 4-12-95 | 2 | P | 1189.25 | 1187 | X | | 5.0 | 49.0 | X | | | | | | X | D |
| | | 5139 | | | X | | | | | | | | | | | | | | | | | | |
| PZ-9D | | 4790 | X | | | | 4-7-95 | 2 | P | 1189.48 | 1187 | X | | 5.0 | 100.0 | X | | | | | | X | D |
| | | 5139 | | | X | | | | | | | | | | | | | | | | | | |
| MW-10 | | 4104 | X | | | | 3-30-95 | 2 | P | 1180.05 | 1177 | X | | 10.0 | 26.5 | | X | | | | | X | D |
| | | 5308 | | | X | | | | | | | | | | | | | | | | | | |
| PZ-10S | | 4104 | X | | | | 3-29-95 | 2 | P | 1179.92 | 1177 | X | | 5.0 | 50.5 | X | | | | | | X | D |
| | | 5380 | | | X | | | | | | | | | | | | | | | | | | |
| PZ-10D | | 4104 | X | | | | 3-28-95 | 2 | P | 1179.41 | 1177 | X | | 5.0 | 100.0 | X | | | | | | X | D |
| | | 5380 | | | X | | | | | | | | | | | | | | | | | | |
| B-1 | | 7297 | X | | | | 5-25-95 | 2 | P | 1200.63 | 1198 | X | | 5.0 | 26.5 | | X | | | | | | N |
| | | 5292 | | | X | | | | | | | | | | | | | | | | | | |
| B-2 | | 7125 | X | | | | 5-26-95 | 2 | P | 1203.03 | 1201 | X | | 5.0 | 28.0 | | X | | | | | | N |
| | | 5424 | | | X | | | | | | | | | | | | | | | | | | |
| B-3 | | 6942 | X | | | | 5-30-95 | 2 | P | 1200.19 | 1198 | X | | 5.0 | 28.5 | | X | | | | | | N |
| | | 5440 | | | X | | | | | | | | | | | | | | | | | | |
| B-4 | | 6564 | X | | | | 5-30-95 | 2 | P | 1192.74 | 1190 | X | | 5.0 | 24.5 | | X | | | | | | N |
| | | 5278 | | | X | | | | | | | | | | | | | | | | | | |
| B-5 | | 6489 | X | | | | 5-30-95 | 2 | P | 1195.98 | 1193 | X | | 5.0 | 28.0 | | X | | | | | | N |
| | | 5478 | | | X | | | | | | | | | | | | | | | | | | |
| B-6 | | 6258 | X | | | | 5-31-95 | 2 | P | 1192.46 | 1190 | X | | 5.0 | 25.0 | | X | | | | | | N |
| | | 5305 | | | X | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

Location Coordinates Are:

☒ Local Grid System (preferred)
☐ State Plane Coordinate
☐ Northern
☐ Central

Remarks:

PSS Use:

File Maint. Completed:

Other:

ATTACHMENT C

# INSTRUCTIONS FOR GROUNDWATER MONITORING WELL INFORMATION - FORM 4400-89

This form, when completed provides a record of information for each well that is part of a facility's groundwater monitoring program. It provides the facility or consultant with a means of presenting in a consistent format the well data which the department requires during a site review process. It should be updated as new wells are added to the monitoring program.

Each element of the form is described below. Complete the form with the necessary information, using the description of the elements as a guide.

Facility ID Number: The license number or identification number of the facility, asssigned by the Department.
Date: The date on which the form is filled out.
Completed By: The name and firm of person completing the form.
Facility Name: The name of the site or landfill.

Well Name: The name given to the well by the facility or consultant; e.g. MW-2, OW-5.
DNR Number: The number assigned to the well by the Department, for use by the Department.

Well Location: The location of the well, measured in feet, in relation to a grid system origin established for the site or state plane coordinate system. (A local grid system is preferred.)

Date Established: The installation date of the well.

Well Casing Diam.: The inside diameter of the pipe used in the well construction, in inches.
Well Casing Type: The type of pipe used: plastic (P), steel (S), or other (O).

Elevations:

Top of Well Casing: The measurement, in feet, of the top of the well casing (not top of protective casing), in feet.
Ground Surface: The measurement, in feet, of the ground surface adjacant to the well.
Reference: Are elevations in reference to Mean Sea Level (MSL) or to a particular site datum established by consultant or facility? Check one or the other.

Screen Length: The length of the screen measured in feet.

Well Depth: The depth of the well from the top of well casing, measured in feet.

Type of Well:

| | | | |
|---|---|---|---|
| PIEZ: | piezometer (sealed below water table) | Abandoned: | Check this box if the well has been abandoned. |
| OW: | water table observation well | | |
| PVT | private well | Enf. Stds. Apply: | Check this box if enforcement standards apply (well is outside DMZ or property line). |
| LYS: | lysimeter | | |
| OTHER: | not any of the above. e.g. head well. | | |

Gradient: The location of the well in the groundwater flow system relative to the disposal site, spill, etc. Use one of the four letters designated below:

U = up gradient
D = down gradient
S = side gradient
N = not known

---

Location Coordinates Are:

Local grid system, established by consultant and submitted to the Department; or State Plane Coordinate System, an established location system for Wisconsin.

Comments.

Add any comments to help clarify items listed above; e.g. MW-17 was abandoned on 1/24/90 and replaced by MW-17R. LHW-1 and LHW-2 are leachate head wells.

# Appendix F

## Monitoring Well Construction Details and Well Development Forms

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☒ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ1S

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or St. Plane ______ ft. N, ______ ft. E.

Wis. Unique Well Number ______ DNR Well Number ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

Date Well Installed: 03/15/95 (m m d d y y)

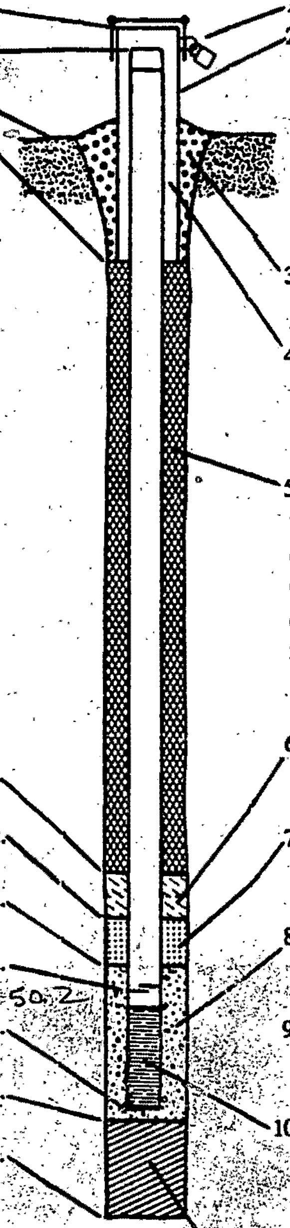
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Brad Davis / Huntingdon Eng + Env.

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL
B. Well casing, top elevation ______ ft. MSL
C. Land surface elevation ______ ft. MSL
D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe Bentonite

17. Source of water (attach analysis): City of Hayward

E. Bentonite seal, top ______ ft. MSL or 41.0 ft.
F. Fine sand, top ______ ft. MSL or 41.0 ft.
G. Filter pack, top ______ ft. MSL or 43.0 ft. 43.5
H. Screen joint, top ______ ft. MSL or ~~[illegible]~~ ft. ~~[illegible]~~ 50.2
I. Well bottom ______ ft. MSL or ~~[illegible]~~ ft.
J. Filter pack, bottom ______ ft. MSL or 52.0 ft.
K. Borehole, bottom ______ ft. MSL or 52.0 ft.
L. Borehole, diameter 6.0 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04 Other ☐ ______
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐ ______

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☒ Other ☐ ______

5. Annular space seal:
a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal:
a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite/Sand Slurry Other ☒

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining BB-7
b. Volume added ______ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30
b. Volume added ______ $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ ______

10. Screen material: Schedule 40 PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ______
b. Manufacturer Brainerd Killman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ ______

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Gull
Firm: Short Elliott Hendrickson Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| Facility/Project Name | County Name | Well Name | |
|---|---|---|---|
| | | | |
| Facility License, Permit or Monitoring Number<br>_ _ _ _ _ _ _ _ _ | County Code<br>_ _ | Wis. Unique Well Number<br>_ _ _ _ _ _ | DNR Well Number<br>_ _ _ |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______________ | ☐ | ▨ |

3. Time spent developing well _ _ _ _ min.

4. Depth of well (from top of well casisng) _ _ _ . _ ft.

5. Inside diameter of well _ _ . _ _ in.

6. Volume of water in filter pack and well casing _ _ _ . _ gal.

7. Volume of water removed from well _ _ _ . _ gal.

8. Volume of water added (if any) _ _ _ . _ gal.

9. Source of water added ______________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. _ _ _ . _ _ ft. | _ _ _ . _ _ ft. |
| Date | b. _ _ / _ _ / _ _<br>m m d d y y | _ _ / _ _ / _ _<br>m m d d y y |
| Time | c. _ _ : _ _ ☐ a.m. ☐ p.m. | _ _ : _ _ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | _ _ . _ inches | _ _ . _ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |
| 15. COD | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ______________________

Firm: ______________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ______________________

Print Initials: _ _ _

Firm: ______________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: HAYWARD LANDFILL

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ1D

Facility License, Permit or Monitoring Number: 6 ________

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number: ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ______ ft. N, -- ______ ft. E.

Date Well Installed: 03/14/95 (m m d d y y)

Distance Well Is From Waste/Source Boundary: ______ ft.

Section Location of Waste/Source: ___1/4 of ___1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) BRAD DAVIS HUNTINGDON

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u. ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe: BENTONITE

17. Source of water (attach analysis):
CITY OF HAYWARD MUNICIPAL WATER

E. Bentonite seal, top ______ ft. MSL or 90.7 ft.

F. Fine sand, top ______ ft. MSL or 90.7 ft.

G. Filter pack, top ______ ft. MSL or 93.0 ft.

H. Screen joint, top ______ ft. MSL or 95.0 ft.

I. Well bottom ______ ft. MSL or 100.0 ft.

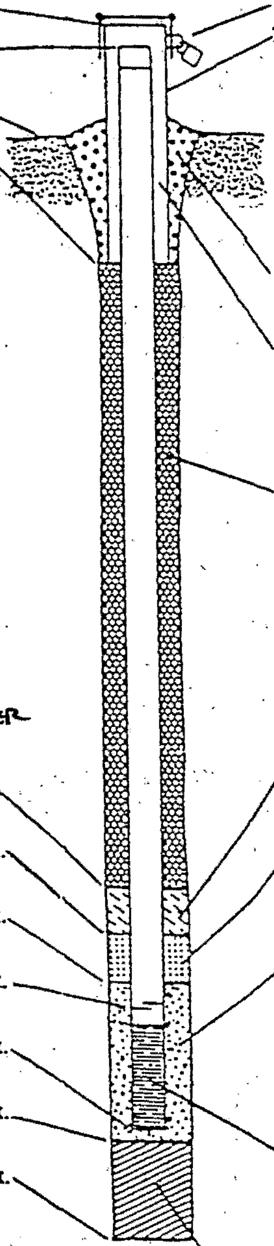
J. Filter pack, bottom ______ ft. MSL or 100.0 ft.

K. Borehole, bottom ______ ft. MSL or 100.0 ft.

L. Borehole, diameter 6.0 in.

M. O.D. well casing 2.~~40~~ 38 in.

N. I.D. well casing 1.96 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐ ▨
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐ ▨

4. Material between well casing and protective pipe:
Bentonite ☐ 30
Annular space seal ☐ ▨
Other ☐ ▨

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite - Sand Slurry Other ☒ ▨

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining #BB-7 ▨
b. Volume added Approx. 50 lbs.

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint Filter Sands + Gravels #30 ▨
b. Volume added Approx 175 lbs

9. Well casing: Flush threaded PVC schedule 40 ☐ 23
Flush threaded PVC schedule 80 ☒ 24
Other ☐ ▨

10. Screen material: Flush threaded PVC Sch. 80 ▨
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ ▨
b. Manufacturer Brainerd Killman
c. Slot size: 0.010 in.
d. Slotted length: 5.0 ft.

11. Backfill material (below filter pack): None ☒ 14
Other ☐ ▨

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Goff

Firm: Short Elliott Hendrickson Inc

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats. and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: MW-6

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number: ______

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: 05/25/95 (m m d d y y)

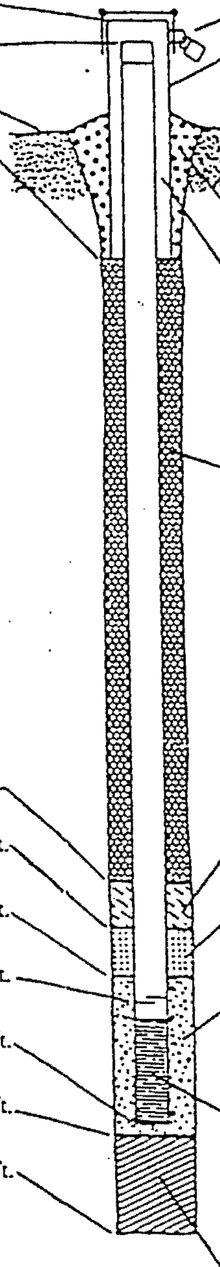
Distance Well Is From Waste/Source Boundary: ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Mike Kislow
Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source:
u ☒ Upgradient s ☐ Sidegradient
d ☐ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL
B. Well casing, top elevation ______ ft. MSL
C. Land surface elevation ______ ft. MSL
D. Surface seal, bottom ______ ft. MSL or ___0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis):
Hayward Municipal Water

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.
F. Fine sand, top ______ ft. MSL or 4.8 ft.
G. Filter pack, top ______ ft. MSL or 7.0 ft.
H. Screen joint, top ______ ft. MSL or 9.0 ft.
I. Well bottom ______ ft. MSL or 19.0 ft.
J. Filter pack, bottom ______ ft. MSL or 23.0 ft.
K. Borehole, bottom ______ ft. MSL or 24.5 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
3/8 hole Plug Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ______ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining BB-7
b. Volume added ______ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Redflint #30
b. Volume added ______ $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐

10. Screen material: Flush Threaded sch 40 PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐
b. Manufacturer Brainerd Kilman
c. Slot size: 0.010 in.
d. Slotted length: 9.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Blow back Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E.
Firm: Short Elliott Hendrickson Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ6S

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or St. Plane ______ ft. N, ______ ft. E.

Wis. Unique Well Number: ▨ DNR Well Number: ▨

Date Well Installed: 05/24/95 (m m d d y y)

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Mike Kislow Huntingdon

Distance Well Is From Waste/Source Boundary ______ ft.

Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known

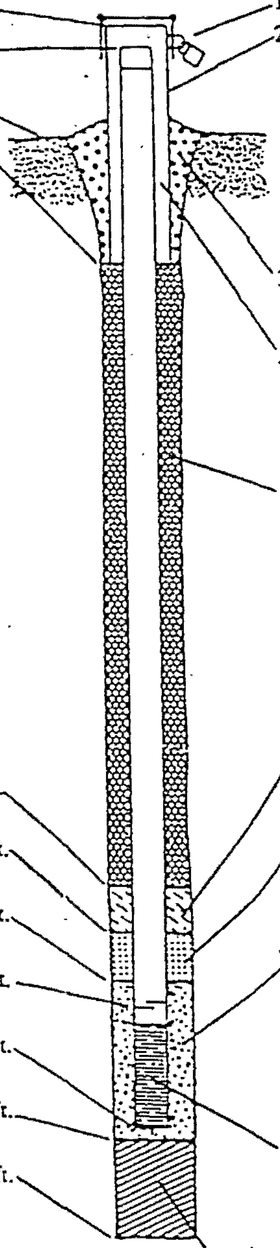
Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.



12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ ▨

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe Bentonite

17. Source of water (attach analysis): Hayward Municipal Water

E. Bentonite seal, top ______ ft. MSL or 41.0 ft.

F. Fine sand, top ______ ft. MSL or 41.0 ft.

G. Filter pack, top ______ ft. MSL or 43.0 ft.

H. Screen joint, top ______ ft. MSL or 45.0 ft.

I. Well bottom ______ ft. MSL or 50.0 ft.

J. Filter pack, bottom ______ ft. MSL or 52.3 ft.

K. Borehole, bottom ______ ft. MSL or 53.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☐ Yes ☒ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 2.0 ft.
c. Material: Steel ☒ 04 Other ☐ ▨
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐ ▨
3/8 Hole Plug

4. Material between well casing and protective pipe: Bentonite ☒ 30 Annular space seal ☐ ▨ Other ☐ ▨
Bentonite Sand Slurry

5. Annular space seal:
a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite Sand Slurry Other ☒ ▨

7. Fine sand material: Manufacturer, product name & mesh size ▨
a. Badger minning BB-7
b. Volume added ______ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size ▨
a. Red flint #30
b. Volume added ______ $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ ▨

10. Screen material: Flush threaded Sch 40 PVC ▨
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ▨
b. Manufacturer Brainard Kilman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☒ ▨
Cave In

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ6D

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number: ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 05/23/95 (m m d d y y)

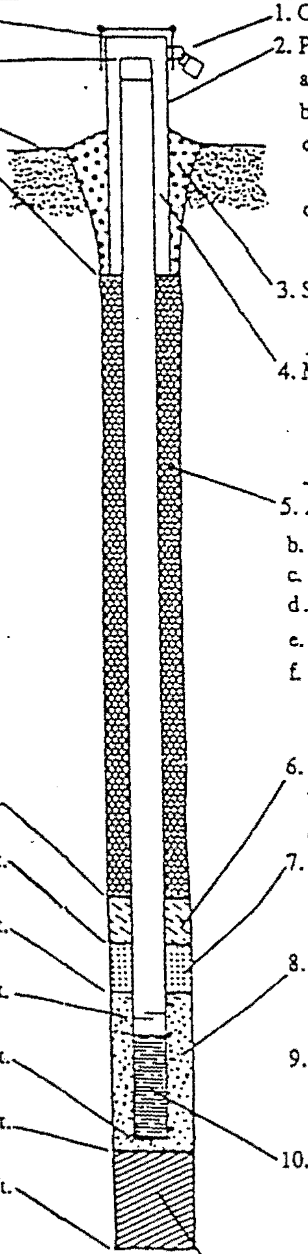
Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Distance Well Is From Waste/Source Boundary: ______ ft.

Well Installed By: (Person's Name and Firm) Mike Kislow Huntingdon

Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe: Bentonite

17. Source of water (attach analysis): Hayward Municipal Water

E. Bentonite seal, top ______ ft. MSL or 90.7 ft.

F. Fine sand, top ______ ft. MSL or 90.7 ft.

G. Filter pack, top ______ ft. MSL or 92.7 ft.

H. Screen joint, top ______ ft. MSL or 95.0 ft.

I. Well bottom ______ ft. MSL or 100.0 ft.

J. Filter pack, bottom ______ ft. MSL or 100.0 ft.

K. Borehole, bottom ______ ft. MSL or 103.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.96 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04 Other ☐ ______
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01
3/8 Hole Plug chips Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
______ Other ☐

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite Sand Slurry Other ☒

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining BB-7
b. Volume added ______ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30
b. Volume added ______ $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☐ 23
Flush threaded PVC schedule 80 ☒ 24
______ Other ☐

10. Screen material: Flush Threaded sch80 PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01
______ Other ☐
b. Manufacturer Brainerd Kilman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Cave in material Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature | Firm SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: MW-7

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number: ▨ DNR Well Number: ▨

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: 5/09/95 (m m d d y y)

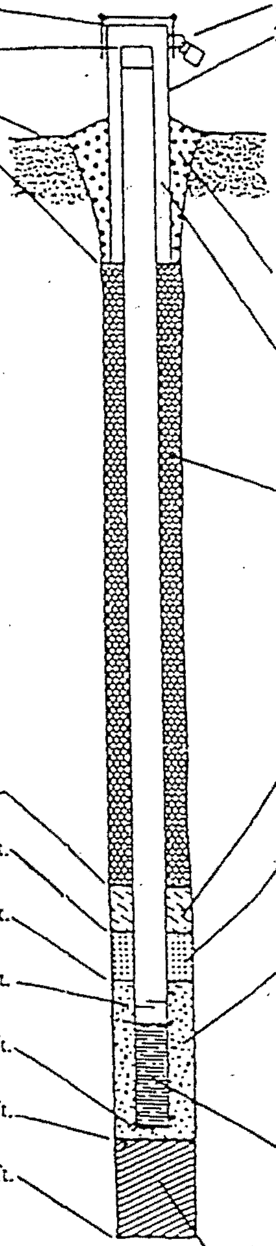
Section Location of Waste/Source: ___1/4 of ___1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Distance Well Is From Waste/Source Boundary: ______ ft.

Well Installed By: (Person's Name and Firm) Brad D Huntingdon

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 10.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ ▨

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis):
Hayward Municipal Water

E. Bentonite seal, top ______ ft. MSL or 20.0 ft.

F. Fine sand, top ______ ft. MSL or 25.0 ft.

G. Filter pack, top ______ ft. MSL or 27.0 ft.

H. Screen joint, top ______ ft. MSL or 30.0 ft.

I. Well bottom ______ ft. MSL or 40.0 ft.

J. Filter pack, bottom ______ ft. MSL or 42.0 ft.

K. Borehole, bottom ______ ft. MSL or 44.0 ft.

L. Borehole, diameter 9.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐ ▨
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
3/8" Holeplug chips Other ☐ ▨

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐ ▨
Other ☐ ▨

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ___Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ___Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ___% Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ___$Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ~~Bentonite sand slurry~~ ~~Other~~ ☒ ▨

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger minning BB-7 ▨
b. Volume added 40 lbs $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30 ▨
b. Volume added lbs $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ ▨

10. Screen material: Flush threaded PVC Sch 40 ▨
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ ▨
b. Manufacturer Brainerd-Killman
c. Slot size: 0.010 in.
d. Slotted length: 9.0 ft.

11. Backfill material (below filter pack): None ☐ 14
cave in material Other ☐ ▨

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Paul Kobal Firm: SEH

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State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

# MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward City Land Fill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ7S

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number: DNR Well Number:

Type of Well: Water Table Observation Well ☐ 11
Piezometer ☒ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: 05/09/95 (m m d d y y)

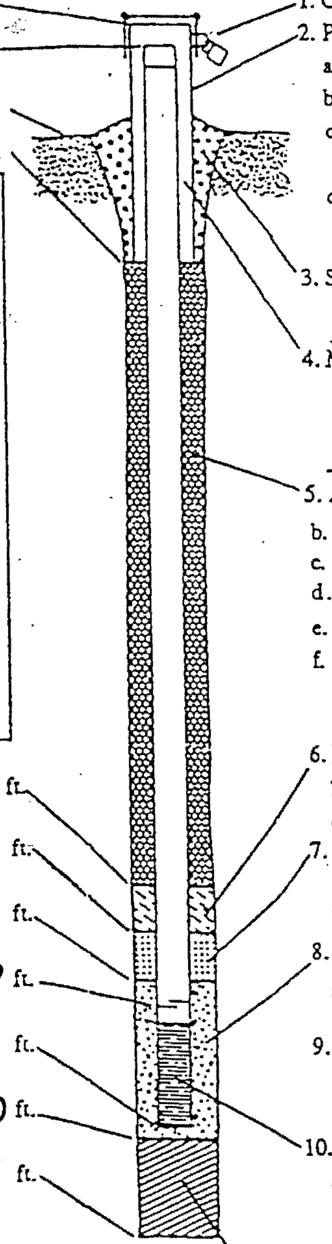
Distance Well Is From Waste/Source Boundary: ______ ft.

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Joel Kramer
Huntington

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source:
u ☐ Upgradient s ☐ Sidegradient
d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 5.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☐ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No
Describe ______

17. Source of water (attach analysis): ______

E. Bentonite seal, top ______ ft. MSL or 50.8 ft.

F. Fine sand, top ______ ft. MSL or 508 ft.

G. Filter pack, top ______ ft. MSL or 52.8 ft.

H. Screen joint, top ______ ft. MSL or 55.0 ft.

I. Well bottom ______ ft. MSL or 60.0 ft.

J. Filter pack, bottom ______ ft. MSL or 61.0 ft.

K. Borehole, bottom ______ ft. MSL or 61.5 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
3/8" Hole Plugs chips Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
______ Other ☐

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite/Sand Slurry Other ☒

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Minning BB-7
b. Volume added approx 10 lbs $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30
b. Volume added approx 50 lbs $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
______ Other ☐

10. Screen material: Flush Threaded PVC sch 40
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
______ Other ☐
b. Manufacturer Brainerd-Killman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14
cave in material Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

## MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: *Hayward Land fill*

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: *PZ7D*

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number: DNR Well Number: ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: *5/04/95* (m m d d y y)

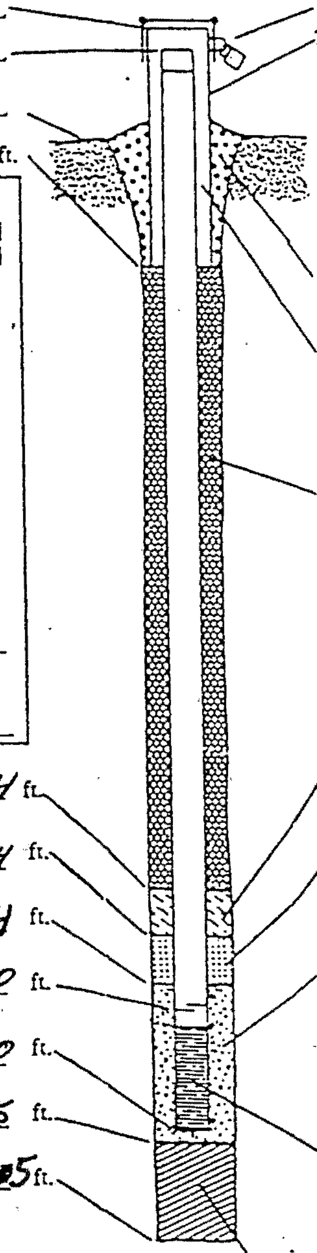
Distance Well Is From Waste/Source Boundary: ______ ft.

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) *Joel Kramer* *Huntingdon*

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or *4.0* ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe *Bentonite*

17. Source of water (attach analysis): *Hayward Municipal Water*

E. Bentonite seal, top ______ ft. MSL or *90.4* ft.

F. Fine sand, top ______ ft. MSL or *90.4* ft.

G. Filter pack, top ______ ft. MSL or *92.4* ft.

H. Screen joint, top ______ ft. MSL or *95.0* ft.

I. Well bottom ______ ft. MSL or *100.0* ft.

J. Filter pack, bottom ______ ft. MSL or *101.5* ft.

K. Borehole, bottom ______ ft. MSL or *101.5* ft.

L. Borehole, diameter *4.0* in.

M. O.D. well casing *2.38* in.

N. I.D. well casing *1.96* in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: *4.0* in.
   b. Length: *7.0* ft.
   c. Material: Steel ☒ 04 Other ☐
   d. Additional protection? ☐ Yes ☒ No
   If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 *3/8 Hole Plug Chips.* Other ☐

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☒ Other ☐ ______

5. Annular space seal:
   a. Granular Bentonite ☐ 33
   b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
   c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. ______ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal:
   a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. *Bentonite/sand slurry* Other ☒

7. Fine sand material: Manufacturer, product name & mesh size
   a. *Badger Minning BB-#7*
   b. Volume added *approx* *.032* $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
   a. *Red Flint #30*
   b. Volume added *approx* *50 lbs* ~~ft³~~

9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☒ 24 Other ☐ ______

10. Screen material: *Flush Threaded Sch 80 PVC*
   a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ______
   b. Manufacturer *Brainard Killman*
   c. Slot size: 0. *010* in.
   d. Slotted length: *4.0* ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: *Paul Kudel*

Firm: *SEH*

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Land Fill

Local Grid Location of Well: ________ ft. ☐ N. ☐ S. ________ ft. ☐ E. ☐ W.

Well Name: MW-8

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ________ Long. ________ or

Wis. Unique Well Number / DNR Well Number: ________

St. Plane ________ ft. N. ________ ft. E.

Date Well Installed: 4/25/95 (m m d d y y)

Type of Well: Water Table Observation Well ☒ 11
Piezometer ☐ 12

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Distance Well Is From Waste/Source Boundary: ________ ft.

Well Installed By: (Person's Name and Firm) Joel Kramer Huntington

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source:
u ☐ Upgradient s ☐ Sidegradient
d ☐ Downgradient n ☐ Not Known

A. Protective pipe, top elevation ______ ft. MSL
B. Well casing, top elevation ______ ft. MSL
C. Land surface elevation ______ ft. MSL
D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☐ No

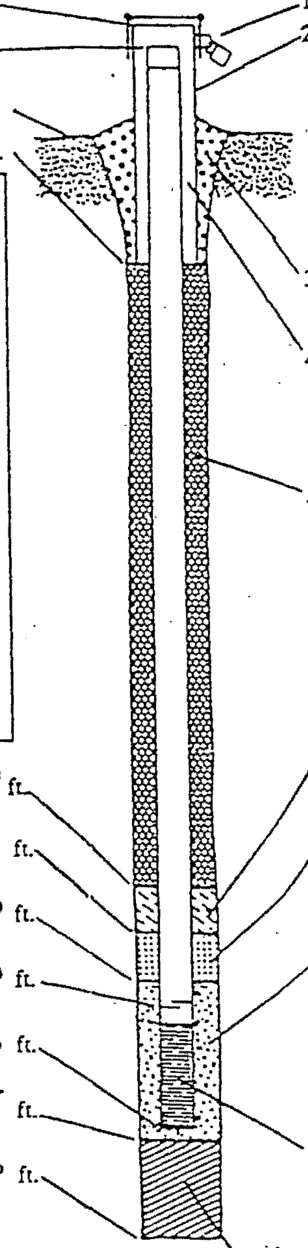
14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Other ☐ ________

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No
Describe ________

17. Source of water (attach analysis): ________

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.
F. Fine sand, top ______ ft. MSL or 16.0 ft.
G. Filter pack, top ______ ft. MSL or 18.0 ft.
H. Screen joint, top ______ ft. MSL or 20.0 ft.
I. Well bottom ______ ft. MSL or 30.0 ft.
J. Filter pack, bottom ______ ft. MSL or 30.5 ft.
K. Borehole, bottom ______ ft. MSL or 34.0 ft.
L. Borehole, diameter 9.0 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.02 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
   a. Inside diameter: 4.0 in.
   b. Length: [illegible]0 ft.
   c. Material: Steel ☒ 04
   Other ☐ ________
   d. Additional protection? ☐ Yes ☒ No
   If yes, describe: ________
3. Surface seal: Bentonite ☒ 30
   Concrete ☐ 01
   Other ☐ ________
4. Material between well casing and protective pipe:
   Bentonite ☒ 30
   Annular space seal ☐
   Other ☐ ________
5. Annular space seal: a. Granular Bentonite ☐ 33
   b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
   c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. ____ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01
   Tremie pumped ☐ 02
   Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets chips ☐ 32
   c. ________ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger Minning BB-7
   b. Volume added 1 lbs ft³
8. Filter pack material: Manufacturer, product name and mesh size
   a. Red flint #30
   b. Volume added 1 lbs ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23
   Flush threaded PVC schedule 80 ☐ 24
   Other ☐ ________
10. Screen material: Flush threaded Sch 40 PVC
    a. Screen type: Factory cut ☒ 11
    Continuous slot ☐ 01
    Other ☐ ________
    b. Manufacturer Brainard Killman
    c. Slot size: 0.010 in.
    d. Slotted length: 9.0 ft.
11. Backfill material (below filter pack): None ☒ 14
    Other ☐ ________

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: | Firm: SEH

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## ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ8S

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or St. Plane ______ ft. N, ______ ft. E.

Wis. Unique Well Number ______ DNR Well Number ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

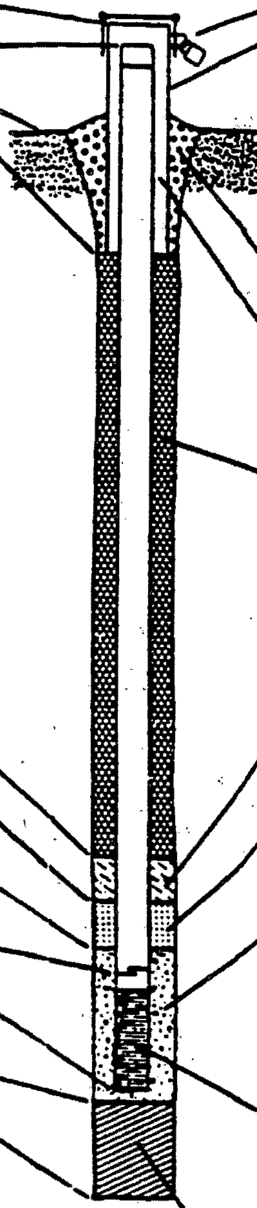
Date Well Installed: 04/18/95 (mm dd yy)

Distance Well Is From Waste/Source Boundary ______ ft.

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☒ Sidegradient d ☒ Downgradient n ☐ Not Known

Well Installed By: (Person's Name and Firm) Joel Kramer Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☒ No



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
______ Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe Bentonite

17. Source of water (attach analysis):
Hayward municipal Water

E. Bentonite seal, top ______ ft. MSL or 41.0 ft.

F. Fine sand, top ______ ft. MSL or 41.0 ft.

G. Filter pack, top ______ ft. MSL or 43.0 ft.

H. Screen joint, top ______ ft. MSL or 45.0 ft.

I. Well bottom ______ ft. MSL or 50.0 ft.

J. Filter pack, bottom ______ ft. MSL or 51.0 ft.

K. Borehole, bottom ______ ft. MSL or 68.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
______ Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
3/8 Bentonite Hole Plug Other ☐ __

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐ __
______ Other ☐ __

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite Sand Slurry Other ☒ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Minning BB-7 __
b. Volume added ______ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30 __
b. Volume added ______ $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
______ Other ☐ __

10. Screen material: Flush threaded sch 40 PVC __
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
______ Other ☐ __
b. Manufacturer Brainard Killman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14
68'-56.5' Cave in / 56.5-53' 3/8 Holeplug chips / 53-51' Fine sand Other ☒ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: | Firm: SEH

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ATTACHMENT B

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| | | | |
|---|---|---|---|
| Facility/Project Name | County Name | Well Name | |
| Facility License, Permit or Monitoring Number<br>_ _ _ _ _ _ _ _ | County Code<br>_ _ | Wis. Unique Well Number<br>_ _ _ _ _ _ | DNR Well Number<br>_ _ _ |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 4 1 |
| surged with bailer and pumped | ☐ | 6 1 |
| surged with block and bailed | ☐ | 4 2 |
| surged with block and pumped | ☐ | 6 2 |
| surged with block, bailed and pumped | ☐ | 7 0 |
| compressed air | ☐ | 2 0 |
| bailed only | ☐ | 1 0 |
| pumped only | ☐ | 5 1 |
| pumped slowly | ☐ | 5 0 |
| Other ________________ | ☐ | _ _ |

3. Time spent developing well _ _ _ _ min.

4. Depth of well (from top of well casing) _ _ _ . _ ft.

5. Inside diameter of well _ _ . _ _ in.

6. Volume of water in filter pack and well casing _ _ _ . _ gal.

7. Volume of water removed from well _ _ _ . _ gal.

8. Volume of water added (if any) _ _ _ . _ gal.

9. Source of water added ____________________

____________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. _ _ _ . _ _ ft. | _ _ _ . _ _ ft. |
| Date | b. _ _ / _ _ / _ _<br>m m d d y y | _ _ / _ _ / _ _<br>m m d d y y |
| Time | c. _ _ : _ _ ☐ a.m. ☐ p.m. | _ _ : _ _ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | _ _ . _ inches | _ _ . _ inches |
| 13. Water clarity | Clear ☐ 1 0<br>Turbid ☐ 1 5<br>(Describe)<br>________<br>________<br>________<br>________<br>________<br>________ | Clear ☐ 2 0<br>Turbid ☐ 2 5<br>(Describe)<br>________<br>________<br>________<br>________<br>________<br>________ |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |
| 15. COD | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |

15. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ____________________

Firm: ____________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ____________________

Print Initials: _ _ _

Firm: ____________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

# MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward LandFill

Local Grid Location of Well: ________ ft. ☐ N. ☐ S. ________ ft. ☐ E. ☐ W.

Well Name: PZ8D

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ________ Long. ________ or

Wis. Unique Well Number DNR Well Number: ________

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ________ ft. N, ________ ft. E.

Date Well Installed: 4/25/95 (m m d d y y)

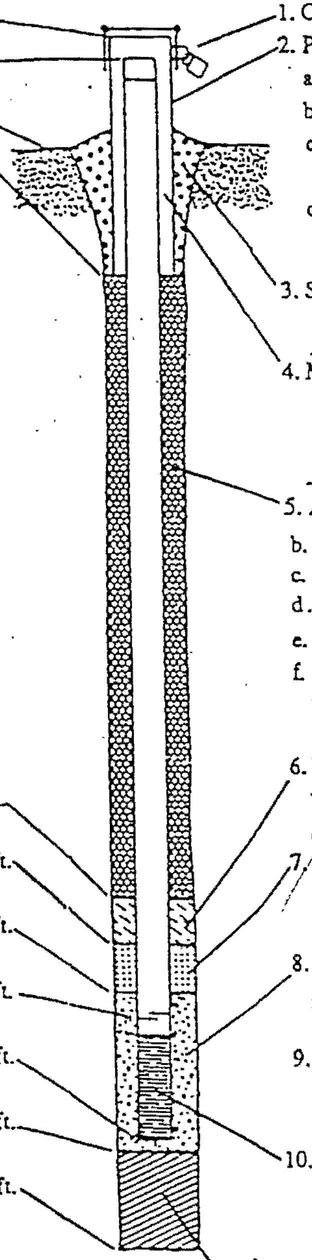
Distance Well Is From Waste/Source Boundary ________ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Joel Kramer
Huntingdor

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☒ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ ________

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No
Describe Bentonite

17. Source of water (attach analysis):
Hayward municipal water

E. Bentonite seal, top ______ ft. MSL or 90.8 ft.

F. Fine sand, top ______ ft. MSL or 90.8 ft.

G. Filter pack, top ______ ft. MSL or 93.0 ft.

H. Screen joint, top ______ ft. MSL or 95.0 ft.

I. Well bottom ______ ft. MSL or 100.0 ft.

J. Filter pack, bottom ______ ft. MSL or 100.5 ft.

K. Borehole, bottom ______ ft. MSL or 101.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.96 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: 4.0 in.
   b. Length: 7.0 ft.
   c. Material: Steel ☒ 04 Other ☐ ________
   d. Additional protection? ☐ Yes ☒ No
   If yes, describe: ________

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐
3/4 hole plug

4. Material between well casing and protective pipe: Bentonite ☒ 30 Annular space seal ☐ Other ☐ ________

5. Annular space seal: a. Granular Bentonite ☐ 33
   b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
   c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. ______ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. Bentonite Sand Slurry Other ☒

7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger minning BB-7
   b. Volume added ________ $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
   a. Red Flint #30
   b. Volume added 40 lbs $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☒ 24 Other ☐ ________

10. Screen material: Flush Threaded Sch80 PVC
   a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ________
   b. Manufacturer BrainerdKillman
   c. Slot size: 0.010 in.
   d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ ________

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: MW-9

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or St. Plane ______ ft. N. ______ ft. E.

Wis. Unique Well Number ______ DNR Well Number ______

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Date Well Installed: 04/12/95 (mm dd yy)

Distance Well Is From Waste/Source Boundary ______ ft.

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

Well Installed By: (Person's Name and Firm)
Joel Kramer
Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
______ Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis): ______

E. Bentonite seal, top ______ ft. MSL or ______ ft.

F. Fine sand, top ______ ft. MSL or 17.0 ft.

G. Filter pack, top ______ ft. MSL or 19.0 ft.

H. Screen joint, top ______ ft. MSL or 21.0 ft.

I. Well bottom ______ ft. MSL or 31.0 ft.

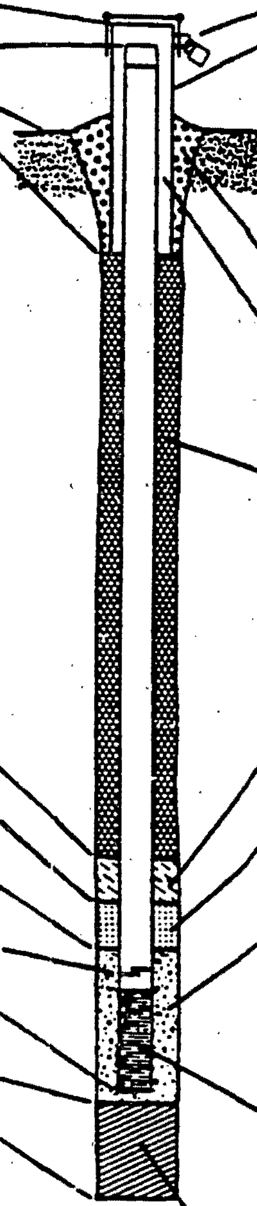
J. Filter pack, bottom ______ ft. MSL or 31.8 ft.

K. Borehole, bottom ______ ft. MSL or 32.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.32 in.

N. I.D. well casing 2.02 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   - a. Inside diameter: 4.0 in.
   - b. Length: 7.0 ft.
   - c. Material: Steel ☒ 04; ______ Other ☐ __
   - d. Additional protection? ☐ Yes ☒ No
     If yes, describe: ______

3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; ______ Other ☐ __

4. Material between well casing and protective pipe: Bentonite ☒ 30; Annular space seal ☐; ______ Other ☐ __

5. Annular space seal:
   - a. Granular Bentonite ☒ 33
   - b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
   - c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   - d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
   - e. ______ $Ft^3$ volume added for any of the above
   - f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08

6. Bentonite seal:
   - a. Bentonite granules ☐ 33
   - b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   - c. ______ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
   - a. Badger mining # BB-7 __
   - b. Volume added 1bs ft³

8. Filter pack material: Manufacturer, product name and mesh size
   - a. Red flint #30 __
   - b. Volume added 1bs ft³

9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; ______ Other ☐ __

10. Screen material: Flush Threaded PVC Sch 40 __
   - a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; ______ Other ☐ __
   - b. Manufacturer Brainard Killman
   - c. Slot size: 0.010 in.
   - d. Slotted length: 9.0 ft.

11. Backfill material (below filter pack): None ☒ 14; ______ Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

ATTACHMENT B

State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B
Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| | | | |
|---|---|---|---|
| Facility/Project Name | County Name | Well Name | |
| Facility License, Permit or Monitoring Number<br>__ __ __ __ __ __ __ __ __ | County Code<br>__ __ | Wis. Unique Well Number<br>__ __ __ __ __ __ | DNR Well Number<br>__ __ |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other ________________ | ☐ | __ __ |

3. Time spent developing well __ __ __ min.

4. Depth of well (from top of well casing) __ __ __ . __ ft.

5. Inside diameter of well __ __ . __ __ in.

6. Volume of water in filter pack and well casing __ __ __ . __ gal.

7. Volume of water removed from well __ __ __ . __ gal.

8. Volume of water added (if any) __ __ __ . __ gal.

9. Source of water added ________________________

________________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. __ __ __ . __ __ ft. | __ __ __ . __ __ ft. |
| Date | b. __ __ / __ __ / __ __<br>m m d d y y | __ __ / __ __ / __ __<br>m m d d y y |
| Time | c. __ __ : __ __ ☐ a.m. ☐ p.m. | __ __ : __ __ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | __ __ . __ inches | __ __ . __ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | __ __ __ __ . __ mg/l | __ __ __ __ . __ mg/l |
| 15. COD | __ __ __ __ . __ mg/l | __ __ __ __ . __ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ________________________

Firm: ________________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ________________________

Print Initials: __ __ __

Firm: ________________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A
Rev. 4-90

Facility/Project Name: Hayward Landfill

Facility License, Permit or Monitoring Number: ________

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

Distance Well Is From Waste/Source Boundary ____ ft.

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Local Grid Location of Well ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Grid Origin Location Lat. ______ Long. ______ or

St. Plane ______ ft. N. ______ ft. E.

Section Location of Waste/Source ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

Well Name: PZ95

Wis. Unique Well Number ______ DNR Well Number ______

Date Well Installed: 04/12/95 (m m d d y y)

Well Installed By: (Person's Name and Firm)
Joel Kramer
Huntingdon

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe Bentonite

17. Source of water (attach analysis):
Hayward municipal water

E. Bentonite seal, top ______ ft. MSL or 40.7 ft.

F. Fine sand, top ______ ft. MSL or 40.7 ft.

G. Filter pack, top ______ ft. MSL or 42.7 ft.

H. Screen joint, top ______ ft. MSL or 45.0 ft.

I. Well bottom ______ ft. MSL or 50.0 ft.

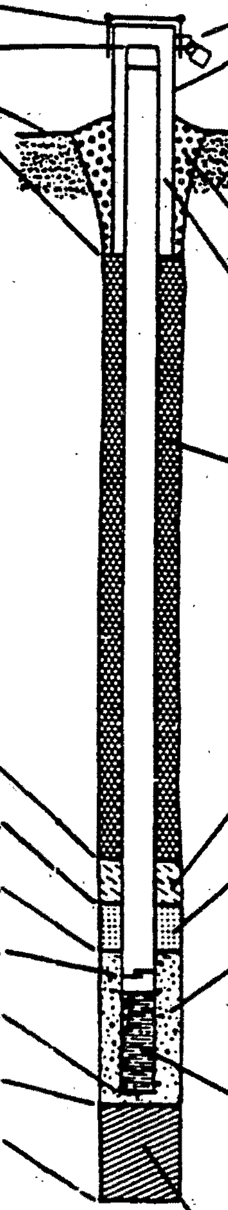
J. Filter pack, bottom ______ ft. MSL or 51.0 ft.

K. Borehole, bottom ______ ft. MSL or 52.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐ __

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐ __
Other ☐ __

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ____ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite Sand slurry Other ☒ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Minning BB#7 __
b. Volume added 25 lbs ~~$ft^3$~~

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30 __
b. Volume added 125 lbs ~~$ft^3$~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ __

10. Screen material: Flush threaded PVC sch 40 __
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ __
b. Manufacturer Brainerd Killman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Cave in (Native) Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm SEH

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ATTACHMENT B

State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B
Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name | County Name | Well Name | |
| Facility License, Permit or Monitoring Number<br>_ _ _ _ _ _ _ _ _ | County Code<br>_ _ | Wis. Unique Well Number<br>_ _ _ _ _ _ _ _ | DNR Well Number<br>_ _ _ _ |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☐ 51
   - pumped slowly ☐ 50
   - Other ______ ☐ __

3. Time spent developing well ____ min.

4. Depth of well (from top of well casing) ___.__ ft.

5. Inside diameter of well __.__ in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well ___.__ gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. ___.__ ft. | ___.__ ft. |
| Date | b. __/__/__<br>m m d d y y | __/__/__<br>m m d d y y |
| Time | c. __:__ ☐ a.m. ☐ p.m. | __:__ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | __.__ inches | __.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ______________________

Firm: ______________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ______________________

Print Initials: ___

Firm: ______________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: P29D

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number ______ DNR Well Number ______

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 4/07/95 (mm/dd/yy)

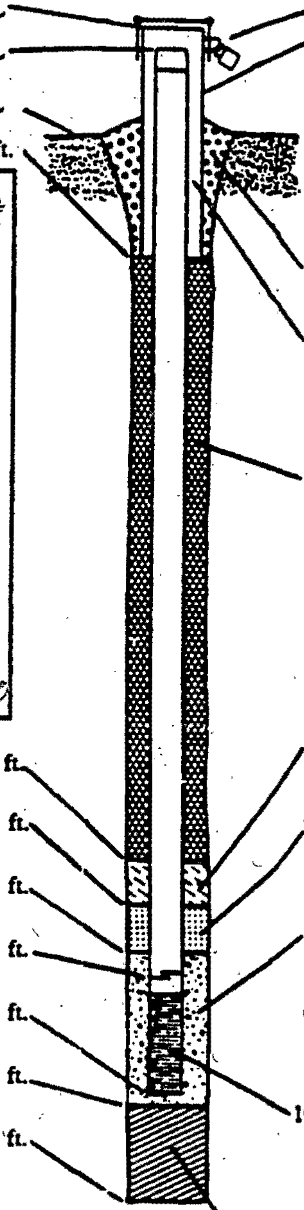
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Jim Wolff
Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No
Describe: Bentonite

17. Source of water (attach analysis):
City of Hayward Municipal H2O

E. Bentonite seal, top ______ ft. MSL or 90.8 ft.

F. Fine sand, top ______ ft. MSL or 90.8 ft.

G. Filter pack, top ______ ft. MSL or 92.8 ft.

H. Screen joint, top ______ ft. MSL or 94.8 ft.

I. Well bottom ______ ft. MSL or 99.8 ft.

J. Filter pack, bottom ______ ft. MSL or 106.0 ft.

K. Borehole, bottom ______ ft. MSL or 106.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.96 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: 4.0 in.
   b. Length: 7.0 ft.
   c. Material: Steel ☒ 04 Other ☐ __
   d. Additional protection? ☐ Yes ☐ No
   If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐ __
3/8 Hole Plug 200 lbs

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☐ __ Other ☐ __

5. Annular space seal:
   a. Granular Bentonite ☐ 33
   b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
   c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. ______ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal:
   a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. Bentonite-Sand Slurry Other ☒ __

7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger Mining #BR-7 __
   b. Volume added 0.27 gal

8. Filter pack material: Manufacturer, product name and mesh size
   a. Red flint Fliter Sand #30 __
   b. Volume added 0.95 to 1.0 gal

9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☒ 24 Other ☐ __

10. Screen material: Flush threaded PVC Sch 80 __
   a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ __
   b. Manufacturer Brainerd Kollman
   c. Slot size: 0.010 in.
   d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: ______ Firm: SEH

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ATTACHMENT B

State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B
Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name | County Name | Well Name |

| | | | |
|---|---|---|---|
| Facility License, Permit or Monitoring Number<br>_ _ _ _ _ _ _ _ _ | County Code<br>_ _ | Wis. Unique Well Number<br>_ _ _ _ _ _ | DNR Well Number<br>_ _ _ |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______________ | ☐ | __ |

3. Time spent developing well _ _ _ _ min.

4. Depth of well (from top of well casing) _ _ _ . _ ft.

5. Inside diameter of well _ _ . _ _ in.

6. Volume of water in filter pack and well casing _ _ _ _ . _ gal.

7. Volume of water removed from well _ _ _ _ . _ gal.

8. Volume of water added (if any) _ _ _ _ . _ gal.

9. Source of water added ______________________

______________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. _ _ _ . _ _ ft. | _ _ _ . _ _ ft. |
| Date | b. _ _ / _ _ / _ _<br>m m d d y y | _ _ / _ _ / _ _<br>m m d d y y |
| Time | c. _ _ : _ _ ☐ a.m. ☐ p.m. | _ _ : _ _ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | _ _ . _ inches | _ _ . _ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |
| 15. COD | _ _ _ _ . _ mg/l | _ _ _ _ . _ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ______________________

Firm: ______________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ______________________

Print Initials: _ _ _

Firm: ______________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: MW 10

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number: ______ DNR Well Number: ______

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 3/30/95 (mm/dd/yy)

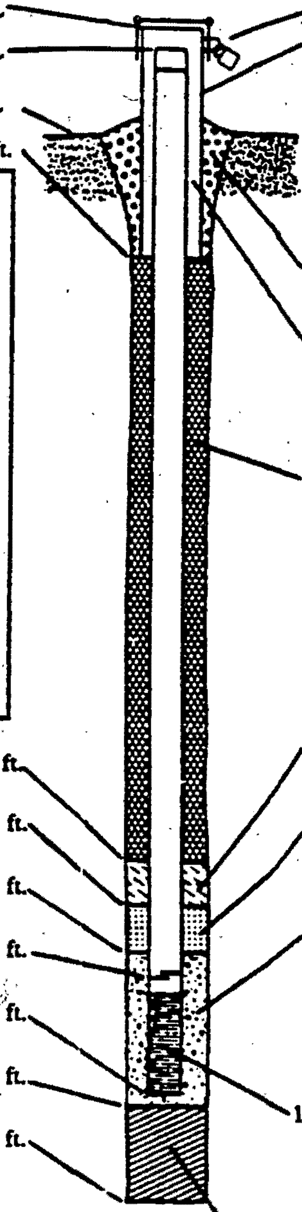
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Joel Kramer Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☐ No

Describe ______

17. Source of water (attach analysis): ______

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.

F. Fine sand, top ______ ft. MSL or 12.7 ft.

G. Filter pack, top ______ ft. MSL or 14.0 ft.

H. Screen joint, top ______ ft. MSL or 16.0 ft.

I. Well bottom ______ ft. MSL or 26.0 ft.

J. Filter pack, bottom ______ ft. MSL or 27.0 ft.

K. Borehole, bottom ______ ft. MSL or 27.0 ft.

L. Borehole, diameter ___ in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.96 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04
Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐ __

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
Other ☐ __

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☒ 32
c. ______ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining BB-7 __
b. Volume added 1 lbs

8. Filter pack material: Manufacturer, product name and mesh size
a. Red flint #30 __
b. Volume added 1 lbs

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ __

10. Screen material: Flush threaded Sch 40 PVC __
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ __
b. Manufacturer Brainard Killman
c. Slot size: 0.010 in.
d. Slotted length: 9.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

ATTACHMENT B

State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B
Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

Facility/Project Name
County Name
Well Name

Facility License, Permit or Monitoring Number ___ ___ ___ ___ ___ ___ ___ ___ ___
County Code ___ ___
Wis. Unique Well Number ___ ___ ___ ___ ___ ___
DNR Well Number ___ ___ ___

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other ________ | ☐ | __ __ |

3. Time spent developing well ___ ___ ___ ___ min.

4. Depth of well (from top of well casing) ___ ___ ___ . ___ ft.

5. Inside diameter of well ___ ___ . ___ ___ in.

6. Volume of water in filter pack and well casing ___ ___ ___ . ___ gal.

7. Volume of water removed from well ___ ___ ___ . ___ gal.

8. Volume of water added (if any) ___ ___ ___ . ___ gal.

9. Source of water added ________________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. ___ ___ ___ . ___ ___ ft. | ___ ___ ___ . ___ ___ ft. |
| Date | b. ___ ___ / ___ ___ / ___ ___<br>m m d d y y | ___ ___ / ___ ___ / ___ ___<br>m m d d y y |
| Time | c. ___ ___ : ___ ___ ☐ a.m. ☐ p.m. | ___ ___ : ___ ___ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | ___ ___ . ___ inches | ___ ___ . ___ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ___ ___ ___ ___ . ___ mg/l | ___ ___ ___ ___ . ___ mg/l |
| 15. COD | ___ ___ ___ ___ . ___ mg/l | ___ ___ ___ ___ . ___ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ________________

Firm: ________________

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ________________

Print Initials: ___ ___ ___

Firm: ________________

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Land fill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: Pz 10 S

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number / DNR Well Number: ______

Type of Well: Water Table Observation Well ☐ 11 / Piezometer ☒ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: 3/29/95 (mm dd yy)

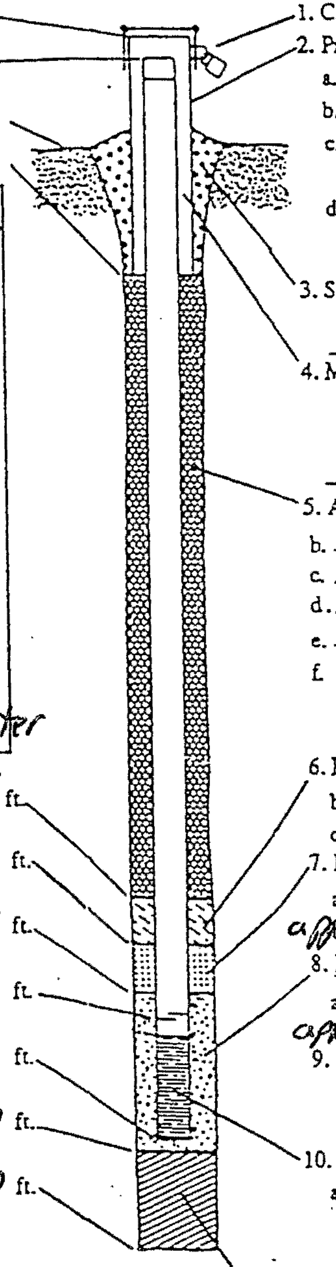
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Joel Kramer / Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or 2.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 / Hollow Stem Auger ☐ 41 / Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 / Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No

Describe: Bentonite

17. Source of water (attach analysis): City of Haywood Muncipal Water

E. Bentonite seal, top ______ ft. MSL or 40.5 ft.

F. Fine sand, top ______ ft. MSL or 40.5 ft.

G. Filter pack, top ______ ft. MSL or 42.5 ft.

H. Screen joint, top ______ ft. MSL or 45.0 ft.

I. Well bottom ______ ft. MSL or 50.0 ft.

J. Filter pack, bottom ______ ft. MSL or 51.0 ft.

K. Borehole, bottom ______ ft. MSL or 51.0 ft.

L. Borehole, diameter 4.0 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.96 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: 4.0 in.
   b. Length: 7.0 ft.
   c. Material: Steel ☒ 04 / Other ☐ ▨
   d. Additional protection? ☐ Yes ☒ No
   If yes, describe: ______

3. Surface seal: Bentonite ☐ 30 / Concrete ☐ 01 / Other ☐ ▨

4. Material between well casing and protective pipe: 3/8 Bentonite ☒ 30 / Annular space seal ☐ ▨ / Other ☐ ▨

5. Annular space seal:
   a. Granular Bentonite ☐ 33
   b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
   c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. ______ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01 / Tremie pumped ☒ 02 / Gravity ☐ 08

6. Bentonite seal:
   a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. Bentonite Sand Slurry Other ☒ ▨

7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger mining BB-7 ▨
   approx Volume added 10 lbs ~~$ft^3$~~

8. Filter pack material: Manufacturer, product name and mesh size
   a. Red Flint #30 ▨
   approx Volume added 50 lbs ~~$ft^3$~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ▨

10. Screen material: Sch 40 PVC ▨
   a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ▨
   b. Manufacturer Brainard Killman
   c. Slot size: 0.010 in.
   d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐ ▨

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:

Firm: Short Elliott Hendrickson Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: PZ10D

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number

Type of Well: Water Table Observation Well ☐ 11 Piezometer ☒ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 03/28/95 (m m d d y y)

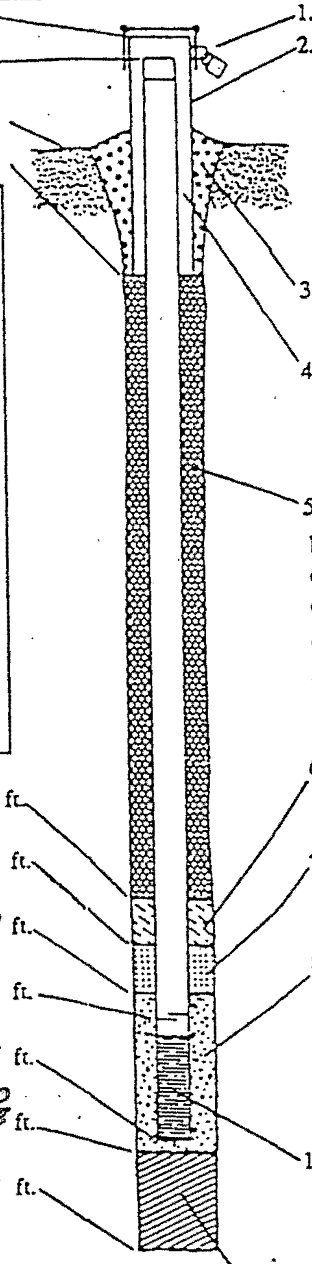
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Joel Kramer ~~(TET)~~
~~Mike Kristow~~ ~~(TET)~~ Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL
B. Well casing, top elevation ______ ft. MSL
C. Land surface elevation ______ ft. MSL
D. Surface seal, bottom ______ ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☒ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☐ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No
Describe: Bentonite

17. Source of water (attach analysis):
City of Hayward Municipal water

E. Bentonite seal, top ______ ft. MSL or 88.0 ft.
F. Fine sand, top ______ ft. MSL or 88.0 ft.
G. Filter pack, top ______ ft. MSL or 91 ~~[illegible]~~.0 ft.
H. Screen joint, top ______ ft. MSL or 94.5 ft.
I. Well bottom ______ ft. MSL or 99.5 ft.
J. Filter pack, bottom ______ ft. MSL or 100.0 ~~[illegible]~~ ft.
K. Borehole, bottom ~~102.0~~ ft. MSL or 102.0 ft.
L. Borehole, diameter 4.0 in.
M. O.D. well casing 02.38 in.
N. I.D. well casing 01.96 in.

1. Cap and lock? ☐ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04 Other ☐ ▨
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: 3/8 Bentonite ☒ 30 Concrete ☐ 01 Other ☐ ▨

4. Material between well casing and protective pipe: Bentonite ☐ 30 Annular space seal ☐ ▨ Other ☐ ▨

5. Annular space seal:
a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☒ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ______ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08

6. Bentonite seal:
a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. Bentonite Sand Slurry Other ☐ ▨

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger mining #BB-7 ▨
b. Volume added approx 10 lbs

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint Filter Sand #30 ▨
b. Volume added approx 70 lbs

9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ ▨

10. Screen material: Flush threaded PVC sch 80 ▨
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ▨
b. Manufacturer Brainard Killman
c. Slot size: 0.010 in.
d. Slotted length: 5.0 ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☒ ▨
Native gravel that caved in

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm: (SEH) Short Elliott Hendrickson Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: B-1

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number: ______

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N, ______ ft. E.

Date Well Installed: 05/25/95 (m m d d y y)

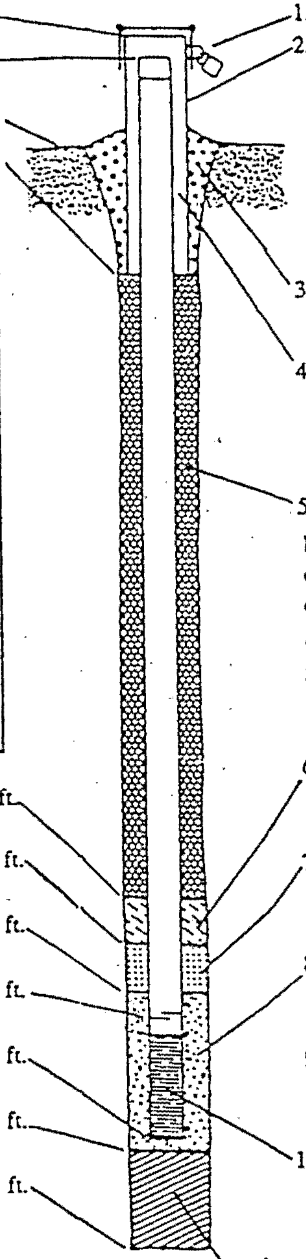
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___ 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) #Mike Kislow Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or ______ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☒ Yes ☐ No

14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☒ 41 Other ☐ ______

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis): Hayward Municipal water

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.

F. Fine sand, top ______ ft. MSL or 17.2 ft.

G. Filter pack, top ______ ft. MSL or 19.3 ft.

H. Screen joint, top ______ ft. MSL or 21.5 ft.

I. Well bottom ______ ft. MSL or 26.5 ft.

J. Filter pack, bottom ______ ft. MSL or 28.5 ft.

K. Borehole, bottom ______ ft. MSL or 28.5 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: [illegible] in.
   b. Length: [illegible] ft.
   c. Material: Steel ☐ 04 Locking Cap Other ☒
   d. Additional protection? ☐ Yes ☒ No
   If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 3/8 Hole plug Other ☐

4. Material between well casing and protective pipe: Bentonite ☒ 30 Annular space seal ☐ ______ Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
   b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
   c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
   e. ______ $Ft^3$ volume added for any of the above
   f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. ______ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger Mining BB-7
   b. Volume added 40 lbs $ft^3$

8. Filter pack material: Manufacturer, product name and mesh size
   a. Red flint #30
   b. Volume added 150 lbs $ft^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 ______ Other ☐

10. Screen material: Flush threaded sch 40 PVC
   a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 ______ Other ☐
   b. Manufacturer Brainerd Kilman
   c. Slot size: 0.010 in.
   d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 ______ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ________ ft. ☐ N. ☐ S. ________ ft. ☐ E. ☐ W.

Well Name: B-2

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ________ Long. ________ or

Wis. Unique Well Number DNR Well Number

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ________ ft. N, ________ ft. E.

Date Well Installed: 05/26/95 (m m d d y y)

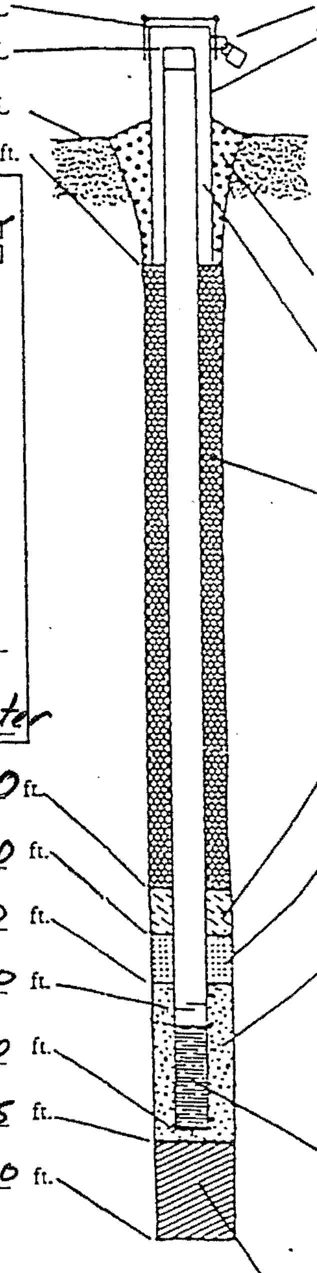
Distance Well Is From Waste/Source Boundary ________ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Mike Kislow
Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source:
u ☐ Upgradient s ☐ Sidegradient
d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation ________ ft. MSL

B. Well casing, top elevation ________ ft. MSL

C. Land surface elevation ________ ft. MSL

D. Surface seal, bottom ________ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ ________

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ________

17. Source of water (attach analysis):
~~H~~ Hayward Municipal Water

E. Bentonite seal, top ________ ft. MSL or 0.0 ft.

F. Fine sand, top ________ ft. MSL or 19.0 ft.

G. Filter pack, top ________ ft. MSL or 21.0 ft.

H. Screen joint, top ________ ft. MSL or 23.0 ft.

I. Well bottom ________ ft. MSL or 28.0 ft.

J. Filter pack, bottom ________ ft. MSL or 29.5 ft.

K. Borehole, bottom ________ ft. MSL or 30.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: Steel ☐ 04
locking wellcap Other ☒
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ________

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
3/8 hole plug Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
3/8 hole Plug Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. 300 lbs ft³ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ________ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Mining BB-7
b. Volume added 90 lbs ft³

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30
b. Volume added 150 lbs ft³

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
________ Other ☐

10. Screen material: Sch 40 PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
________ Other ☐
b. Manufacturer Brainerd Kilman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14
________ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature
Firm SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

ATTACHMENT A

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: B-3

Facility License, Permit or Monitoring Number: _ _ _ _ _ _ _ _

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number ______ DNR Well Number ______

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 05/30/95 (m m d d y y)

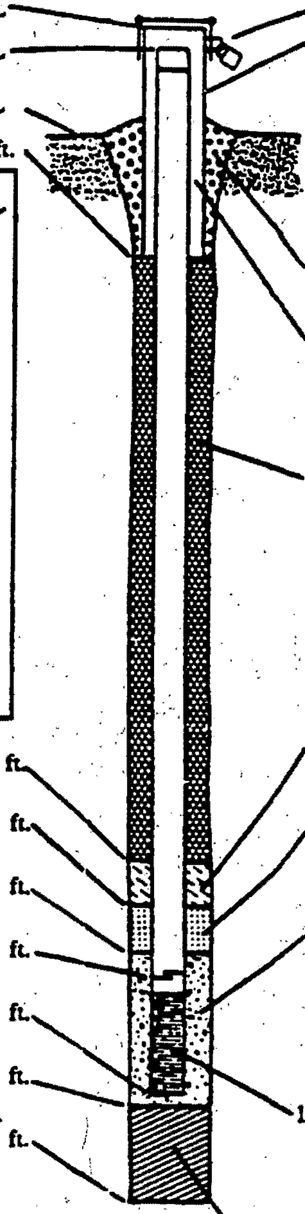
Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N. R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm)
Brad Davis
Huntindon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source:
u ☐ Upgradient s ☐ Sidegradient
d ☒ Downgradient n ☐ Not Known



A. Protective pipe, top elevation _ _ _ _ . _ _ ft. MSL

B. Well casing, top elevation _ _ _ _ . _ _ ft. MSL

C. Land surface elevation _ _ _ _ . _ _ ft. MSL

D. Surface seal, bottom _ _ _ _ . _ _ ft. MSL or _ _ . _ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ _ _

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis): ______

E. Bentonite seal, top _ _ _ _ . _ _ ft. MSL or _ _ 00 ft.

F. Fine sand, top _ _ _ _ . _ _ ft. MSL or _19.5 ft.

G. Filter pack, top _ _ _ _ . _ _ ft. MSL or _21.5 ft.

H. Screen joint, top _ _ _ _ . _ _ ft. MSL or _23.5 ft.

I. Well bottom _ _ _ _ . _ _ ft. MSL or _28.5 ft.

J. Filter pack, bottom _ _ _ _ . _ _ ft. MSL or _29.0 ft.

K. Borehole, bottom _ _ _ _ . _ _ ft. MSL or _29.0' ft.

L. Borehole, diameter _8.0 in.

M. O.D. well casing _2.37 in.

N. I.D. well casing _2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: _ _ . _ in.
b. Length: _ _ . _ ft.
c. Material: Steel ☐ 04
none Other ☒ _ _
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
______ Other ☐ _ _

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐ _ _
______ Other ☐ _ _

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ______ % Bentonite . . . . . . Bentonite-cement grout ☐ 50
e. 300 lbs ~~Ft$^3$~~ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ______ Other ☐ _ _

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger Minning BB-7 _ _
b. Volume added 40 lbs ~~ft$^3$~~

8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint #30 _ _
b. Volume added 130 lbs ~~ft$^3$~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
______ Other ☐ _ _

10. Screen material: Flush thread sch 40 PVC _ _
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
______ Other ☐ _ _
b. Manufacturer Brainerd Kilman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14
______ Other ☐ _ _

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature | Firm STS

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ATTACHMENT B

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B
Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| Facility/Project Name | County Name | Well Name | |
|---|---|---|---|
| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______ | ☐ | |

3. Time spent developing well ____ min.

4. Depth of well (from top of well casing) ___ . _ ft.

5. Inside diameter of well __ . __ in.

6. Volume of water in filter pack and well casing ___ . _ gal.

7. Volume of water removed from well ___ . _ gal.

8. Volume of water added (if any) ___ . _ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. ___ . __ ft. | ___ . __ ft. |
| Date | b. __/__/__ m m d d y y | __/__/__ m m d d y y |
| Time | c. __ : __ ☐ a.m. ☐ p.m. | __ : __ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | __ . _ inches | __ . _ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____ . _ mg/l | ____ . _ mg/l |
| 15. COD | ____ . _ mg/l | ____ . _ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: ______

Firm: ______

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: ______

Print Initials: ______

Firm: ______

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

## MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ________ ft. ☐ N. ☐ S. ________ ft. ☐ E. ☐ W.

Well Name: B-4

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ________ Long. ________ or St. Plane ________ ft. N, ________ ft. E.

Wis. Unique Well Number DNR Well Number

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

Date Well Installed: 05/31/95 (m m d d y y)

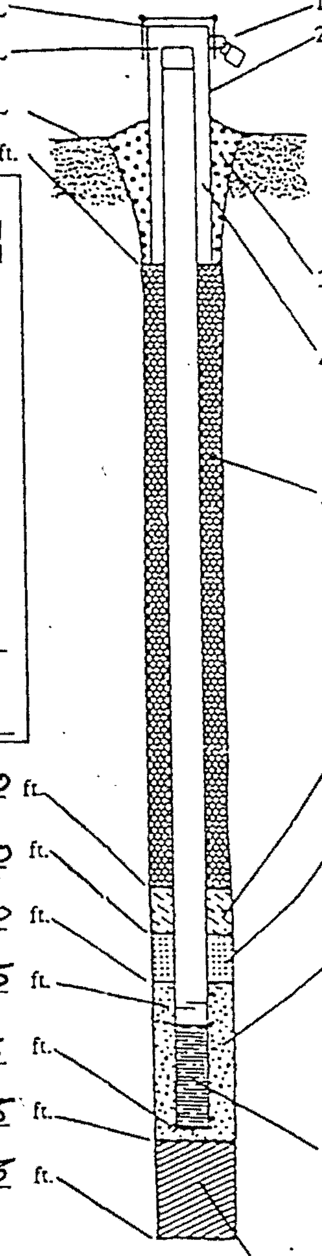
Section Location of Waste/Source: ___1/4 of ___1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Distance Well Is From Waste/Source Boundary: ________ ft.

Well Installed By: (Person's Name and Firm)
Brad Davis
Huntingdon

Location of Well Relative to Waste/Source:
u ☐ Upgradient s ☐ Sidegradient
d ☒ Downgradient n ☐ Not Known

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No



A. Protective pipe, top elevation ________ ft. MSL
B. Well casing, top elevation ________ ft. MSL
C. Land surface elevation ________ ft. MSL
D. Surface seal, bottom ________ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☒ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐ ________

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ________

17. Source of water (attach analysis): ________

E. Bentonite seal, top ________ ft. MSL or 0.0 ft.
F. Fine sand, top ________ ft. MSL or 15.0 ft.
G. Filter pack, top ________ ft. MSL or 17.0 ft.
H. Screen joint, top ________ ft. MSL or 19.5 ft.
I. Well bottom ________ ft. MSL or 24.5 ft.
J. Filter pack, bottom ________ ft. MSL or 24.5 ft.
K. Borehole, bottom ________ ft. MSL or 24.5 ft.
L. Borehole, diameter 6 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.02 in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: Steel ☐ 04
none Other ☒
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ________

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____% Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 350 lbs ~~ft³~~ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ________ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger minning BB-7
b. Volume added 30 lbs ~~ft³~~

8. Filter pack material: Manufacturer, product name and mesh size
a. Redflint #30
b. Volume added 80 lbs ~~ft³~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐

10. Screen material: Flush Threaded Sch 40 PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐
b. Manufacturer Brainerd Kilman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14
Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Paul Kubesl
Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐ Env. Response & Repair ☐ Underground Tanks ☐ Other ☐

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: B-5

Facility License, Permit or Monitoring Number: ________

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number / DNR Well Number:

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 05/30/95 (m m d d y y)

Distance Well Is From Waste/Source Boundary ______ ft.

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Well Installed By: (Person's Name and Firm) Brad Davis Huntingdon

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☒ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis):
~~Hayward municipal water~~

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.

F. Fine sand, top ______ ft. MSL or 18.5 ft.

G. Filter pack, top ______ ft. MSL or 20.5 ft.

H. Screen joint, top ______ ft. MSL or 23.0 ft.

I. Well bottom ______ ft. MSL or 28.0 ft.

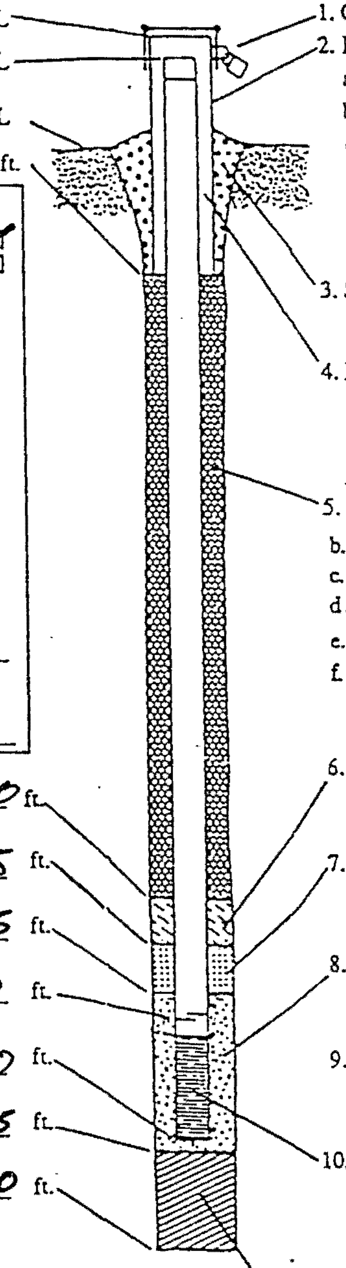
J. Filter pack, bottom ______ ft. MSL or 28.5 ft.

K. Borehole, bottom ______ ft. MSL or 29.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: Steel ☐ 04
none Other ☒
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ______

3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
Other ☐

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Annular space seal ☐
Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
b. ____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
d. ____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. 250 lbs ~~Ft³~~ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ______ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger mining BB-7
b. Volume added 30 lbs ~~ft³~~

8. Filter pack material: Manufacturer, product name and mesh size
a. Redflint #30
b. Volume added 100 lbs ~~ft³~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐

10. Screen material: Flush threaded Sch 40 PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐
b. Manufacturer Brainerd Killman
c. Slot size: 0.010 in.
d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Blow Back Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Paul Kul

Firm: SEH

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch.144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐

**MONITORING WELL CONSTRUCTION**
Form 4400-113A Rev. 4-90

Facility/Project Name: Hayward Landfill

Local Grid Location of Well: ______ ft. ☐ N. ☐ S. ______ ft. ☐ E. ☐ W.

Well Name: B-6

Facility License, Permit or Monitoring Number: ______

Grid Origin Location: Lat. ______ Long. ______ or

Wis. Unique Well Number DNR Well Number

Type of Well: Water Table Observation Well ☒ 11 Piezometer ☐ 12

St. Plane ______ ft. N. ______ ft. E.

Date Well Installed: 05/31/95 (m m d d y y)

Section Location of Waste/Source: ___1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐ E. ☐ W.

Distance Well Is From Waste/Source Boundary: ______ ft.

Well Installed By: (Person's Name and Firm) Brad Davis Huntingdon

Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

A. Protective pipe, top elevation ______ ft. MSL

B. Well casing, top elevation ______ ft. MSL

C. Land surface elevation ______ ft. MSL

D. Surface seal, bottom ______ ft. MSL or ______ ft.

12. USCS classification of soil near screen: GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒ SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐ Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☒ 41 Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ______

17. Source of water (attach analysis): ______

E. Bentonite seal, top ______ ft. MSL or 0.0 ft.

F. Fine sand, top ______ ft. MSL or 155 ft.

G. Filter pack, top ______ ft. MSL or 17.5 ft.

H. Screen joint, top ______ ft. MSL or 19.9 ft.

I. Well bottom ______ ft. MSL or 24.9 ft.

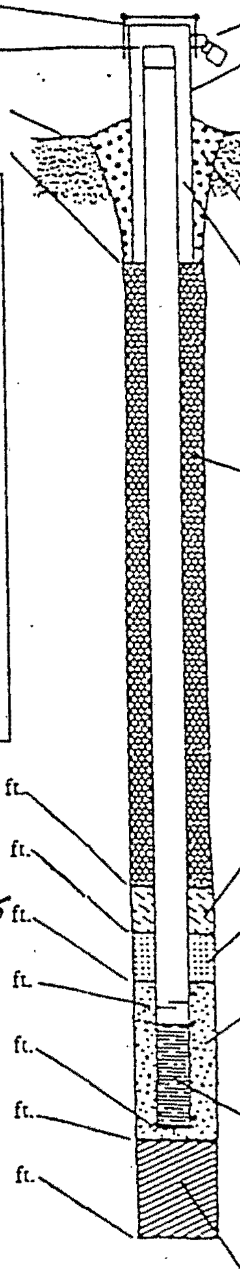
J. Filter pack, bottom ______ ft. MSL or 25.0 ft.

K. Borehole, bottom ______ ft. MSL or 25.0 ft.

L. Borehole, diameter 8 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.02 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
   a. Inside diameter: ______ in.
   b. Length: ______ ft.
   c. Material: Steel ☐ 04 Other ☒ none
   d. Additional protection? ☐ Yes ☒ No If yes, describe: ______

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐

4. Material between well casing and protective pipe: Bentonite ☒ 30 Annular space seal ☐ Other ☐

5. Annular space seal: a. Granular Bentonite ☒ 33
   b. ______ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
   c. ______ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
   d. ______ % Bentonite . . . . . Bentonite-cement grout ☐ 50
   e. 300 lbs ~~ft³~~ volume added for any of the above
   f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
   c. ______ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
   a. Badger Minning BB-7
   b. Volume added 40 lbs ~~ft³~~

8. Filter pack material: Manufacturer, product name and mesh size
   a. Red Flint #30
   b. Volume added 150 lbs ~~ft³~~

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐

10. Screen material: Flush threaded sch40 PVC
   a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐
   b. Manufacturer Brainerd Kilman
   c. Slot size: 0.010 in.
   d. Slotted length: 4.0 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: John E. Gift

Firm: SEH

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State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-15 | |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☒ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______ | ☐ | |

3. Time spent developing well 45 min.

4. Depth of well (from top of well casisng) 52.7 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.6 gal.

7. Volume of water removed from well 48.9 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 21.73 ft. | ___.__ ft. |
| Date | b. 03/30/95<br>m m d d y y | 03/30/95<br>m m d d y y |
| Time | c. 1:05 ☐ a.m. ☒ p.m. | 1:50 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Gulf

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-1D | |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☒ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______ | ☐ | |

3. Time spent developing well 18 min.

4. Depth of well (from top of well casisng) 102.5 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 17.2 gal.

7. Volume of water removed from well 125.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 21.32 ft. | ___.__ ft. |
| Date | b. 05/18/95 (mm/dd/yy) | 05/18/95 (mm/dd/yy) |
| Time | c. 9:00 ☒ a.m. ☐ p.m. | 9:35 ☒ a.m. ■ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John C. Goff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

Facility/Project Name: Hayward Landfill
County Name: Sawyer
Well Name: MW-6
Facility License, Permit or Monitoring Number: ________
County Code: __
Wis. Unique Well Number:
DNR Well Number:

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well: 75 min.

4. Depth of well (from top of well casisng): 22.2 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 37.0 gal.

7. Volume of water removed from well: 90.0 gal.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: ______

10. Analysis performed on water added? ☐ Yes ☒ No
    (If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 14.66 ft. | 15.22 ft. |
| Date (mm dd yy) | b. 06/02/95 | 06/02/95 |
| Time | c. 2:30 ☐ a.m. ☒ p.m. | 3:15 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | 0.0 inches | 0.0 inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe)<br>Very Turbid | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____._ mg/l | _____._ mg/l |
| 15. COD | _____._ mg/l | _____._ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm
Name: John E. Guhl
Firm: Short Elliott Hendrickson

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: John E. Guhl
Print Initials: JEG
Firm: Short Elliott Hendrickson

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-6S | |
| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☒ 51
- pumped slowly ☐ 50
- Other ______ ☐

3. Time spent developing well 95 min.

4. Depth of well (from top of well casisng) 53.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 10.5 gal.

7. Volume of water removed from well 105.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added —

10. Analysis performed on water added? ☐ Yes ☒ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 14.08 ft. | 17.98 ft. |
| Date | b. 06/02/95 (m m d d y y) | 06/02/95 (m m d d y y) |
| Time | c. 12:25 ☐ a.m. ☒ p.m. | 2:00 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | __.__ inches | __.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe)<br>Slightly Brown | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: John E. Gull

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Gell

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| Facility/Project Name | County Name | Well Name |
|---|---|---|
| Hayward Landfill | Sawyer | PZ-6D |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well Number |
|---|---|---|---|
| | | | |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ________ ☐

3. Time spent developing well 150 min.

4. Depth of well (from top of well casisng) 102.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 17.5 gal.

7. Volume of water removed from well 175.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added —

10. Analysis performed on water added? ☐ Yes ☒ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 14.65 ft. | 21.75 ft. |
| Date | b. 06/02/95 (m m / d d / y y) | 06/02/95 (m m / d d / y y) |
| Time | c. 9:44 ☒ a.m. ☐ p.m. | 12:14 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | 0.0 inches | __.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe)<br>Slightly Brown | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____._ mg/l | _____._ mg/l |
| 15. COD | _____._ mg/l | _____._ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: John E. Guhl

Firm: Short Elliott Hendrickson Inc

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guhl

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
**Form 4400-113B** Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name<br>HAYWARD LANDFILL | County Name<br>SAWYER | Well Name<br>MW-7 | |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☒ 51
- pumped slowly ☐ 50
- Other ______ ☐

3. Time spent developing well 18 min.

4. Depth of well (from top of well casisng) 42.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.9 gal.

7. Volume of water removed from well 12.1 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 32.57 ft. | ___.__ ft. |
| Date | b. 05/18/95 (mm dd yy) | 05/18/95 (mm dd yy) |
| Time | c. 9:00 ☒ a.m. ■ p.m. | 9:35 ☒ a.m. ☐ p.m. |
| 12. Sediment in well bottom | 0.0 inches | 0.0 inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>HAYWARD LANDFILL | County Name<br>SAWYER | Well Name<br>PZ-7S |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number ______ DNR Well Number ______ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☒ 51
- pumped slowly ☐ 50
- Other ______ ☐

3. Time spent developing well 29 min.

4. Depth of well (from top of well casisng) 62.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.5 gal.

7. Volume of water removed from well 45.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. ___.__ ft. | ___.__ ft. |
| Date | b. 05/18/95 (mm dd yy) | 05/18/95 (mm dd yy) |
| Time | c. 10:49 ☒ a.m. ☐ p.m. | 4:31 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guld

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| Facility/Project Name | County Name | Well Name | |
|---|---|---|---|
| HAYWARD LANDFILL | SAWYER | PZ-7D | |
| **Facility License, Permit or Monitoring Number** | **County Code** | **Wis. Unique Well Number** | **DNR Well Number** |
| 01751 | 58 | | |

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☒ | 51 |
| pumped slowly | ☐ | 50 |
| Other ________ | ☐ | |

3. Time spent developing well 21 min.

4. Depth of well (from top of well casisng) 102.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 14.9 gal.

7. Volume of water removed from well 110.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 32.42 ft. | ___.__ ft. |
| Date | b. 05/18/95 (mm/dd/yy) | 05/18/95 (mm/dd/yy) |
| Time | c. 1:33 ☐ a.m. ☒ p.m. | 3:58 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

<u>Route to:</u> Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>MW-8 |
| Facility License, Permit or Monitoring Number<br>01751__ | County Code<br>58 | Wis. Unique Well Number ______ DNR Well Number ____ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well 31 min.

4. Depth of well (from top of well casisng) 32.2 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 6.7 gal.

7. Volume of water removed from well 12.3 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 24.68 ft. | ___.__ ft. |
| Date | b. 04/26/95<br>m m d d y y | __/__/__<br>m m d d y y |
| Time | c. 2:55 ☐ a.m. ☒ p.m. | 3:26 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Gelf

Print Initials: J E G

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| | | |
|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-8S |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number ______ DNR Well Number ___ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☒ 51
- pumped slowly ☐ 50
- Other ________ ☐

3. Time spent developing well 22 min.

4. Depth of well (from top of well casisng) 52.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.9 gal.

7. Volume of water removed from well 45.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 24.78 ft. | ___.__ ft. |
| Date | b. 04/26/95 (mm dd yy) | 04/26/95 (mm dd yy) |
| Time | c. 9:30 ☒ a.m. ☐ p.m. | 9:52 ☒ a.m. ☐ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. [illegible]

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>HAYWARD LANDFILL | County Name<br>SAWYER | Well Name<br>PZ-8D |

| | | | |
|---|---|---|---|
| Facility License, Permit or Monitoring Number<br>01751__ | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☒ 51
- pumped slowly ☐ 50
- Other ______ ☐

3. Time spent developing well __18 min.

4. Depth of well (from top of well casisng) 102.5 ft.

5. Inside diameter of well _2.00 in.

6. Volume of water in filter pack and well casing _16.8 gal.

7. Volume of water removed from well 133.8 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. _20.40 ft. | ___.__ ft. |
| Date | b. 04/26/95 (mm dd yy) | 04/26/95 (mm dd yy) |
| Time | c. _9:58 ☒ a.m. ☐ p.m. | _2:29 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Gerff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>MW-9 |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well 19 min.

4. Depth of well (from top of well casisng) 33.2 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 5.4 gal.

7. Volume of water removed from well 9.8 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 27.21 ft. | ___.__ ft. |
| Date | b. 04/19/95 (mm dd yy) | 04/19/95 (mm dd yy) |
| Time | c. 5:10 ☐ a.m. ☒ p.m. | 5:29 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ___.__ mg/l | ___.__ mg/l |
| 15. COD | ___.__ mg/l | ___.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. G

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-95 |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number ______ DNR Well Number ______ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well 25 min.

4. Depth of well (from top of well casisng) 52.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.0 gal.

7. Volume of water removed from well 39.7 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No (If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 28.03 ft. | ___.__ ft. |
| Date | b. 04/19/95 (mm dd yy) | 04/19/95 (mm dd yy) |
| Time | c. 1:00 ☐ a.m. ☒ p.m. | 3:50 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E.

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

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State of Wisconsin
Department of Natural Resources

**MONITORING WELL DEVELOPMENT**
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| Facility/Project Name | County Name | Well Name | |
|---|---|---|---|
| HAYWARD LANDFILL | SAWYER | PZ-9D | |
| **Facility License, Permit or Monitoring Number** | **County Code** | **Wis. Unique Well Number** | **DNR Well Number** |
| 01751 | 58 | | |

1. Can this well be purged dry? ☐ Yes ☑ No

2. Well development method
- surged with bailer and bailed ☐ 41
- surged with bailer and pumped ☐ 61
- surged with block and bailed ☐ 42
- surged with block and pumped ☐ 62
- surged with block, bailed and pumped ☐ 70
- compressed air ☐ 20
- bailed only ☐ 10
- pumped only ☑ 51
- pumped slowly ☐ 50
- Other ________ ☐

3. Time spent developing well 35 min.

4. Depth of well (from top of well casisng) 102.2 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 15.5 gal.

7. Volume of water removed from well 121.0 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 28.22 ft. | ___.__ ft. |
| Date | b. 04/19/95 (mm dd yy) | 04/19/95 (mm dd yy) |
| Time | c. 10:47 ☒ a.m. ☐ p.m. | 12:02 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

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State of Wisconsin
Department of Natural Resources

## MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ________

| | | | |
|---|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>MW-10 | |
| Facility License, Permit or Monitoring Number<br>01751 | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☒ | 51 |
| pumped slowly | ☐ | 50 |
| Other ________ | ☐ | |

3. Time spent developing well 35 min.

4. Depth of well (from top of well casisng) 28.7 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 5.9 gal.

7. Volume of water removed from well 10.7 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ________

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 22.13 ft. | ___.__ ft. |
| Date | b. 04/17/95 (m m / d d / y y) | 04/17/95 (m m / d d / y y) |
| Time | c. 4:10 ☐ a.m. ☒ p.m. | 4:45 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | ___.__ inches | ___.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☐ 15<br>(Describe) | Clear ☐ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | ____.__ mg/l | ____.__ mg/l |
| 15. COD | ____.__ mg/l | ____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. [illegible]

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | | |
|---|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-105 | |
| Facility License, Permit or Monitoring Number<br>01751__ | County Code<br>58 | Wis. Unique Well Number | DNR Well Number |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☐ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☒ | 51 |
| pumped slowly | ☐ | 50 |
| Other ______ | ☐ | |

3. Time spent developing well __30 min.

4. Depth of well (from top of well casisng) 52.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.6 gal.

7. Volume of water removed from well 50.4 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 21.43 ft. | ___.__ ft. |
| Date | b. 04/17/95 (mm/dd/yy) | 04/17/95 (mm/dd/yy) |
| Time | c. 4:50 ☐ a.m. ☒ p.m. | 5:20 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | __.__ inches | __.__ inches |
| 13. Water clarity | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E Goff

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 4-90

**Route to:** Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ ______

| | | |
|---|---|---|
| Facility/Project Name<br>Hayward Landfill | County Name<br>Sawyer | Well Name<br>PZ-10D |
| Facility License, Permit or Monitoring Number<br>01751__ | County Code<br>58 | Wis. Unique Well Number ______ / DNR Well Number ______ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method
   - surged with bailer and bailed ☐ 41
   - surged with bailer and pumped ☐ 61
   - surged with block and bailed ☐ 42
   - surged with block and pumped ☐ 62
   - surged with block, bailed and pumped ☐ 70
   - compressed air ☐ 20
   - bailed only ☐ 10
   - pumped only ☒ 51
   - pumped slowly ☐ 50
   - Other ______ ☐

3. Time spent developing well ____ min.

4. Depth of well (from top of well casisng) 101.8 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 16.6 gal.

7. Volume of water removed from well 127.3 gal.

8. Volume of water added (if any) ____.__ gal.

9. Source of water added ______

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

| | | Before Development | After Development |
|---|---|---|---|
| 11. Depth to Water (from top of well casing) | | a. 21.42 ft. | ____.__ ft. |
| | Date | b. 04/17/95 (m m / d d / y y) | 04/17/95 (m m / d d / y y) |
| | Time | c. __:__ ☐ a.m. ☐ p.m. | __:__ ☐ a.m. ☐ p.m. |
| 12. Sediment in well bottom | | __.__ inches | __.__ inches |
| 13. Water clarity | | Clear ☐ 10<br>Turbid ☒ 15<br>(Describe) | Clear ☒ 20<br>Turbid ☐ 25<br>(Describe) |

Fill in if drilling fluids were used and well is at solid waste facility:

| | Before Development | After Development |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name: Paul Kubesh

Firm: Short Elliott Hendrickson Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John E. Guhl

Print Initials: JEG

Firm: Short Elliott Hendrickson Inc.

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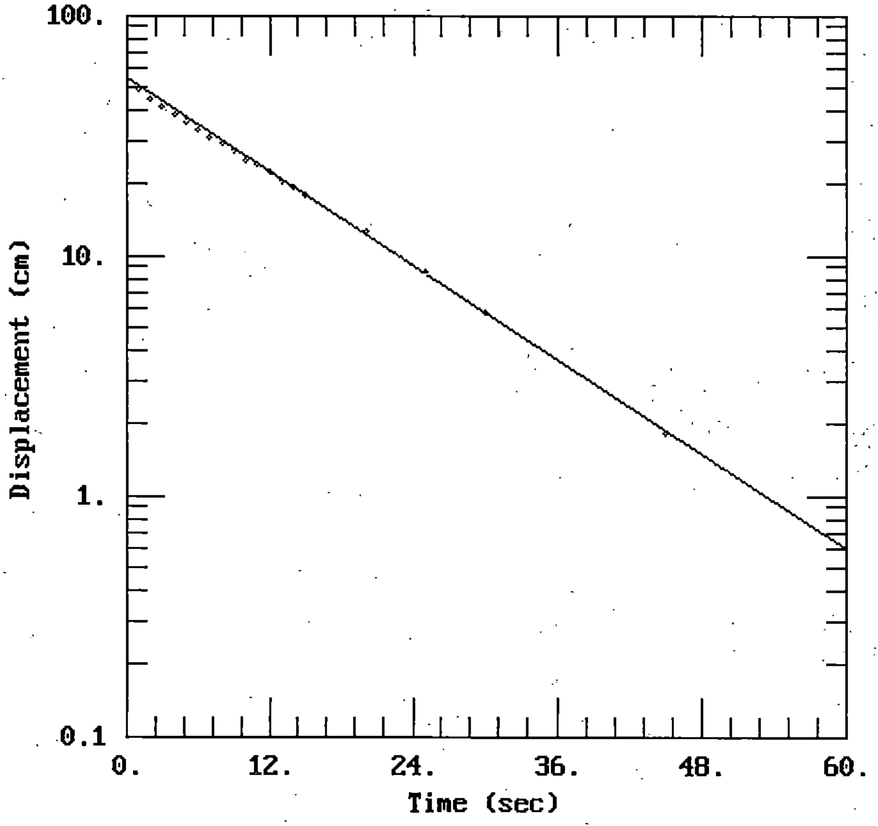
# Appendix G

## Hydraulic Conductivity Test Results



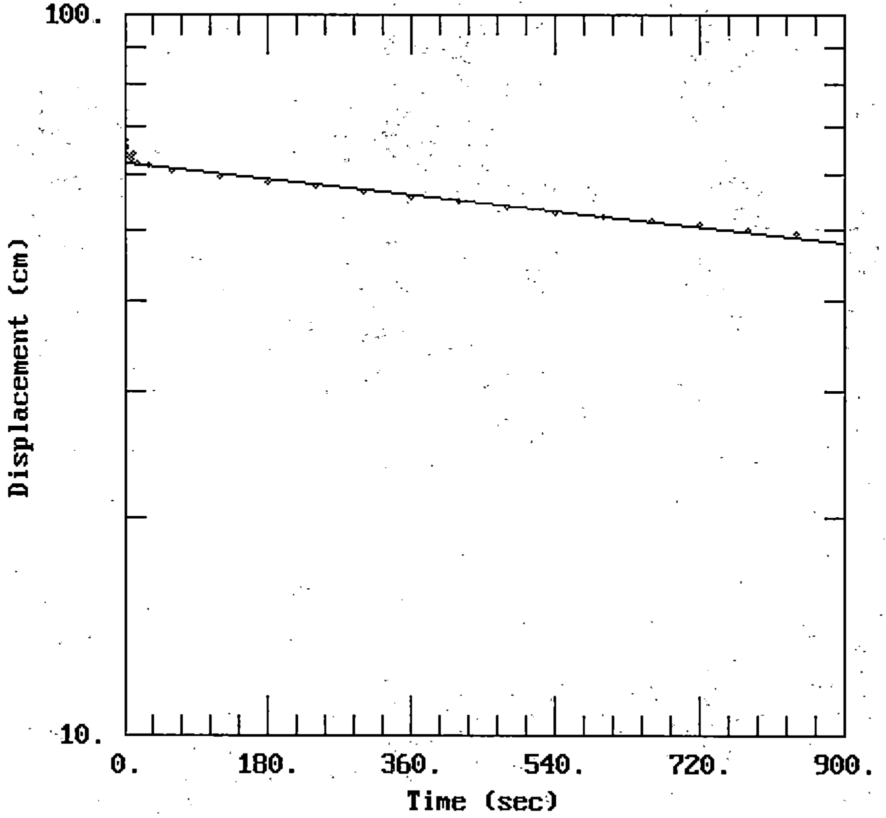
DATA SET:
PZ-1S.DAT
08/01/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 79.25 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 962. cm
H = 962. cm

PARAMETER ESTIMATES:
K = 0.004633 cm/sec
y0 = 55.07 cm



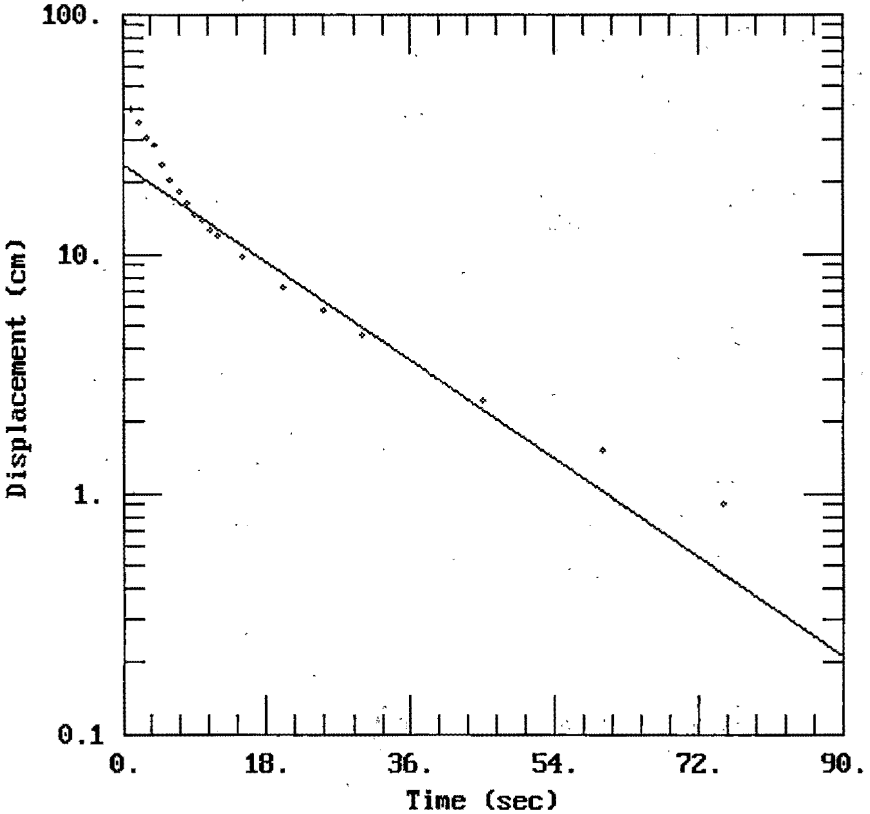
DATA SET:
PZ-1D.DAT
08/01/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 67.06 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 2490.8 cm
H = 2490.8 cm

PARAMETER ESTIMATES:
K = 2.905E-05 cm/sec
y0 = 62.3 cm



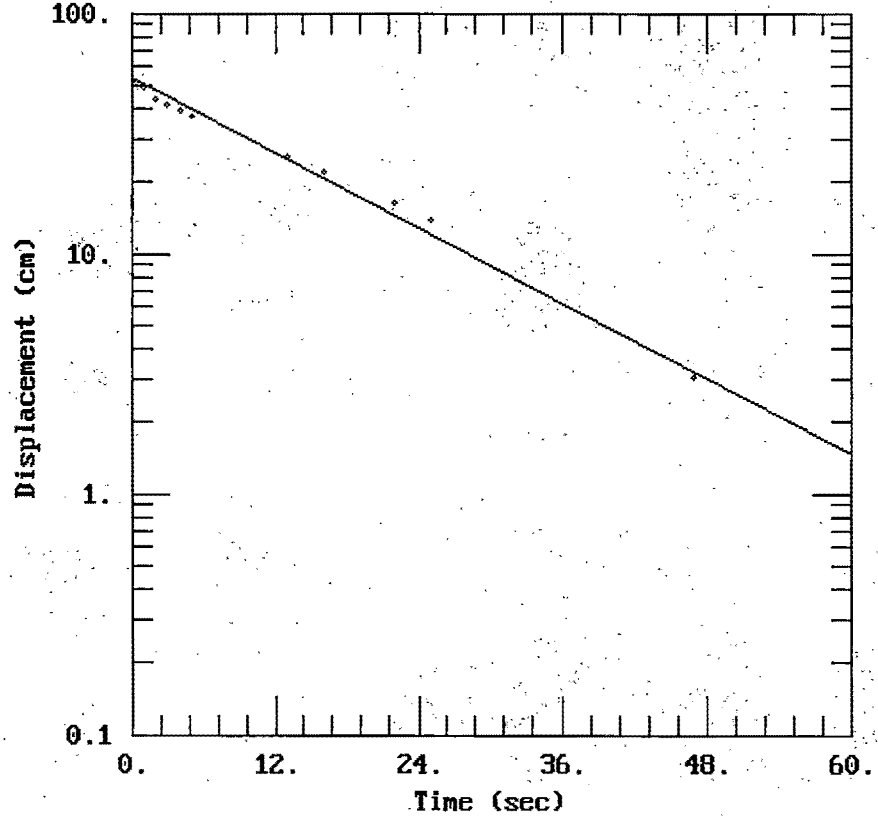
DATA SET:
HAYMW-6.DAT
07/24/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 93.57 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 214.3 cm
b = 214.3 cm
H = 214.3 cm

PARAMETER ESTIMATES:
K = 0.00177 cm/sec
y0 = 23.64 cm



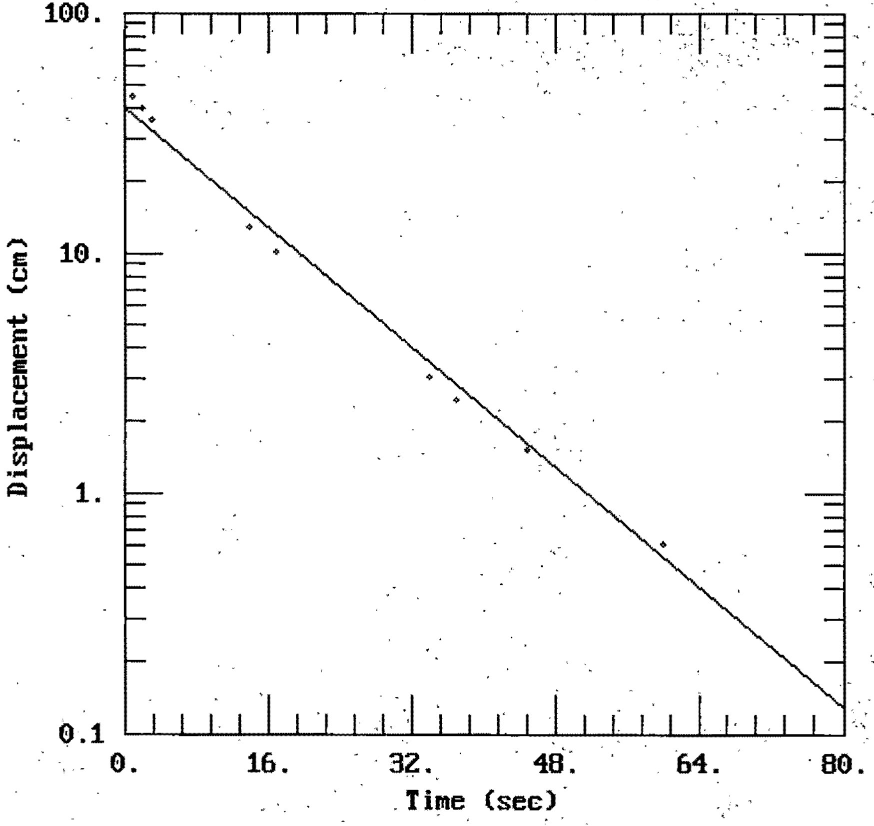
DATA SET:
PZ-6S.DAT
08/10/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 52.49 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 1158. cm
H = 1158. cm

PARAMETER ESTIMATES:
K = 0.003802 cm/sec
y0 = 53.48 cm

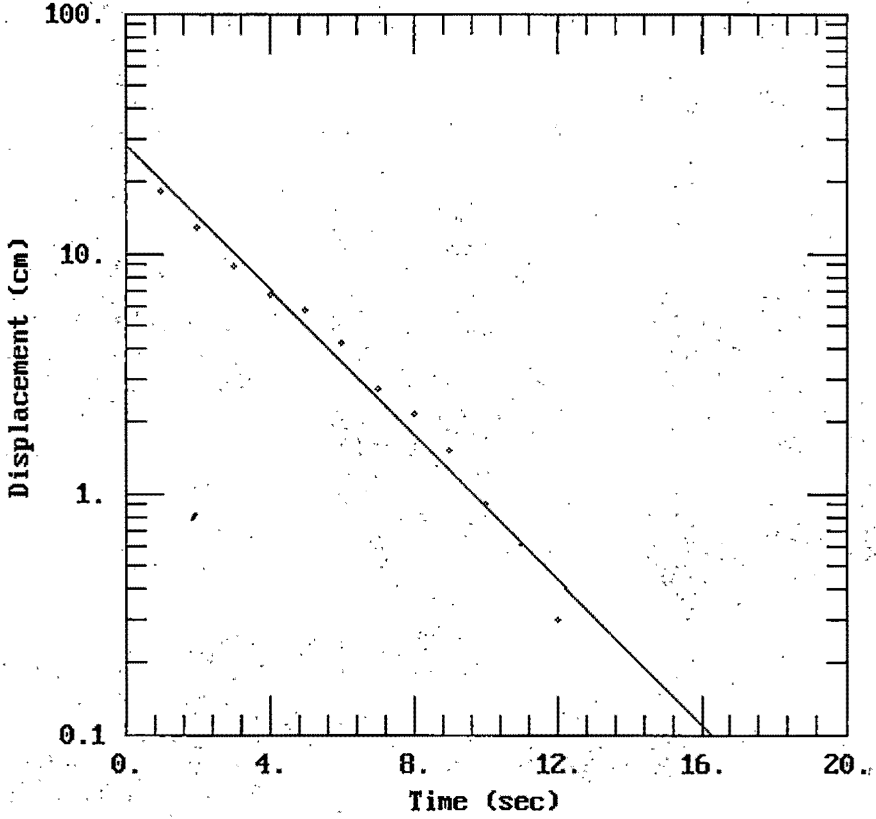


DATA SET:
PZ-6D.DAT
08/10/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 87.48 cm
$r_c$= 2.54 cm
$r_w$= 10.4 cm
L = 152.4 cm
b = 2651.8 cm
H = 2651.8 cm

PARAMETER ESTIMATES:
K = 0.005075 cm/sec
y0 = 40.35 cm



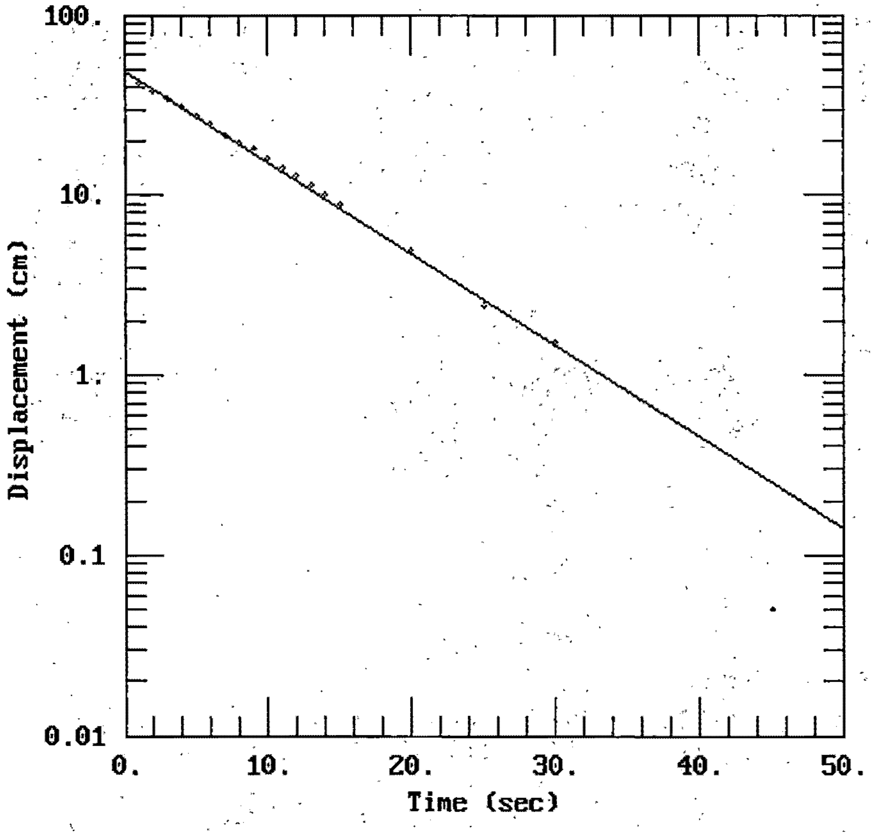
DATA SET:
HAYMW-7.DAT
07/24/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 27.73 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 248.4 cm
b = 248.4 cm
H = 248.4 cm

PARAMETER ESTIMATES:
K = 0.01068 cm/sec
y0 = 28.38 cm



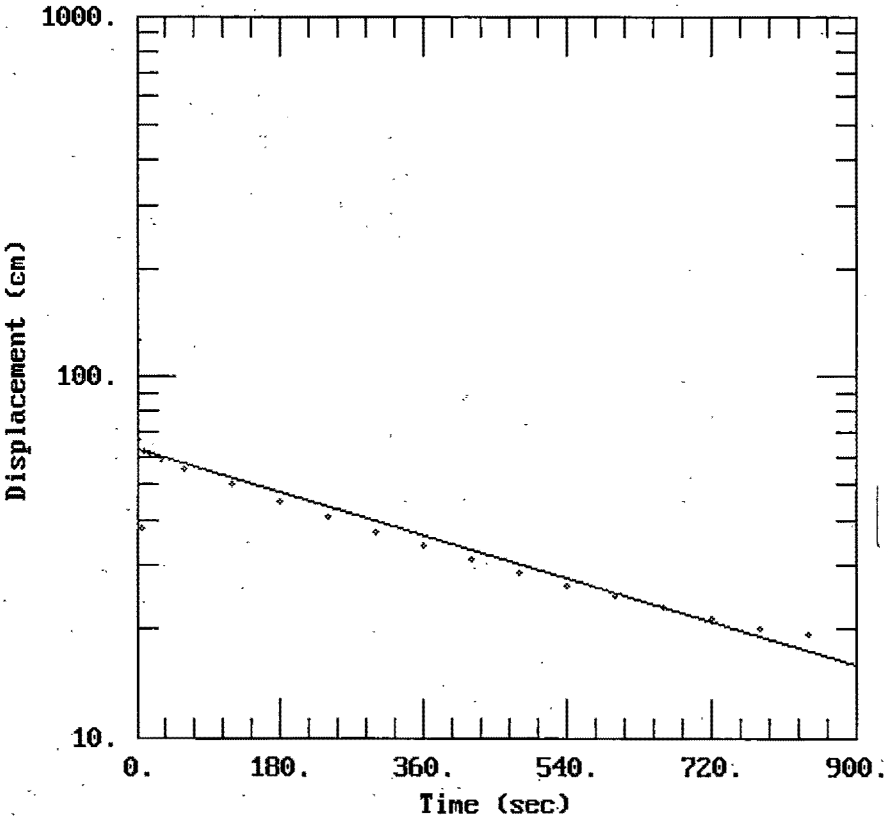
DATA SET:
PZ-7S.DAT
08/01/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 47.55 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 871.1 cm
H = 871.1 cm

PARAMETER ESTIMATES:
K = 0.007074 cm/sec
y0 = 49.03 cm



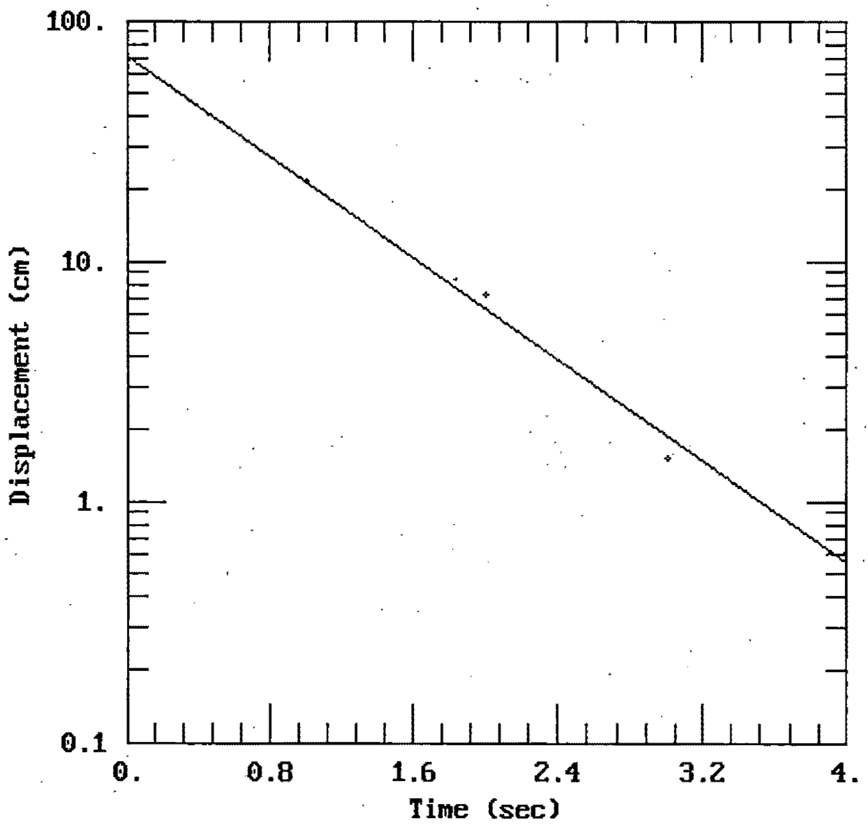
DATA SET:
PZ-7D.DAT
08/01/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 125.9 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 2076.6 cm
H = 2076.6 cm

PARAMETER ESTIMATES:
K = 0.0001046 cm/sec
y0 = 62.5 cm



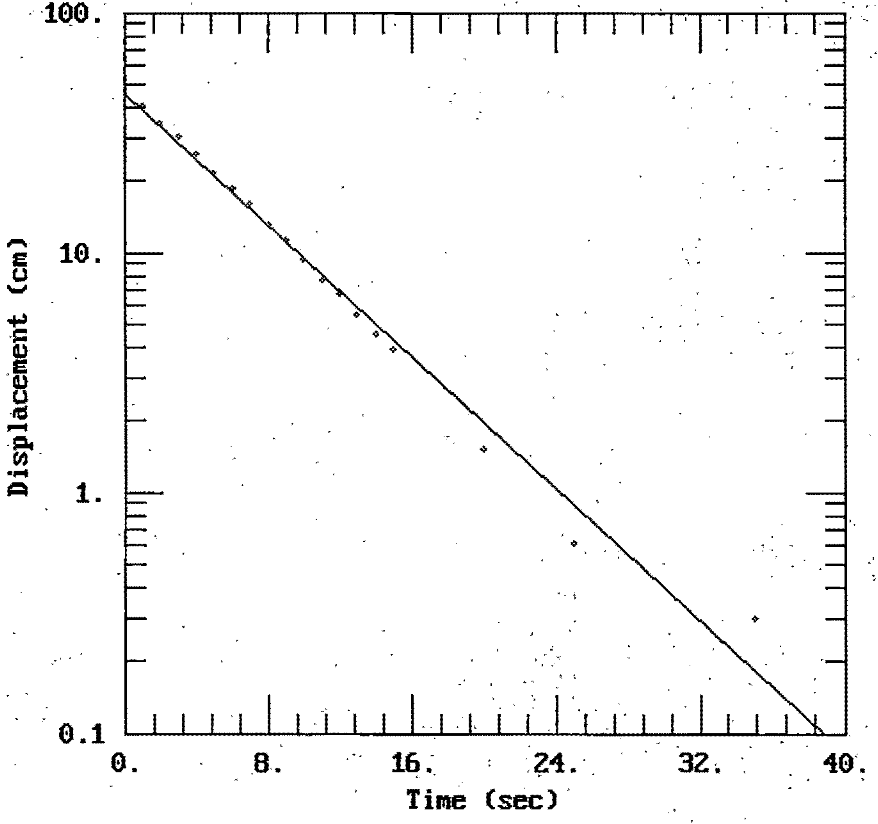
DATA SET:
HAYMW-8.DAT
07/24/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 68.88 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 256. cm
b = 256. cm
H = 256. cm

PARAMETER ESTIMATES:
K = 0.03667 cm/sec
y0 = 71.64 cm



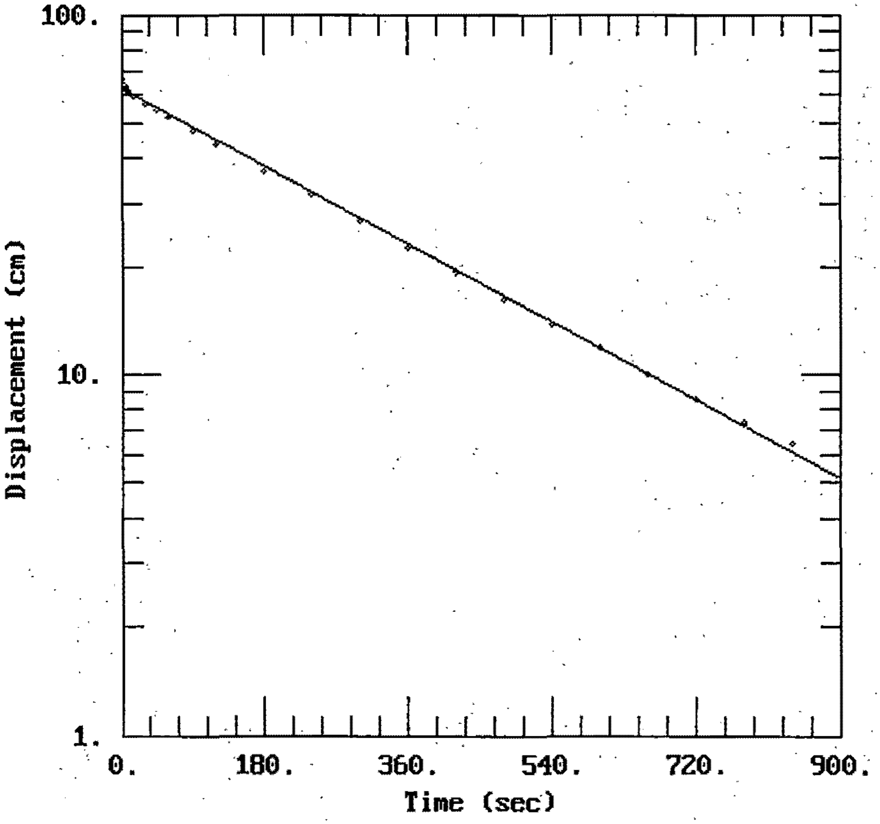
DATA SET:
PZ-8S.DAT
07/31/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 49.68 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 887.6 cm
H = 887.6 cm

PARAMETER ESTIMATES:
K = 0.009555 cm/sec
y0 = 45.59 cm



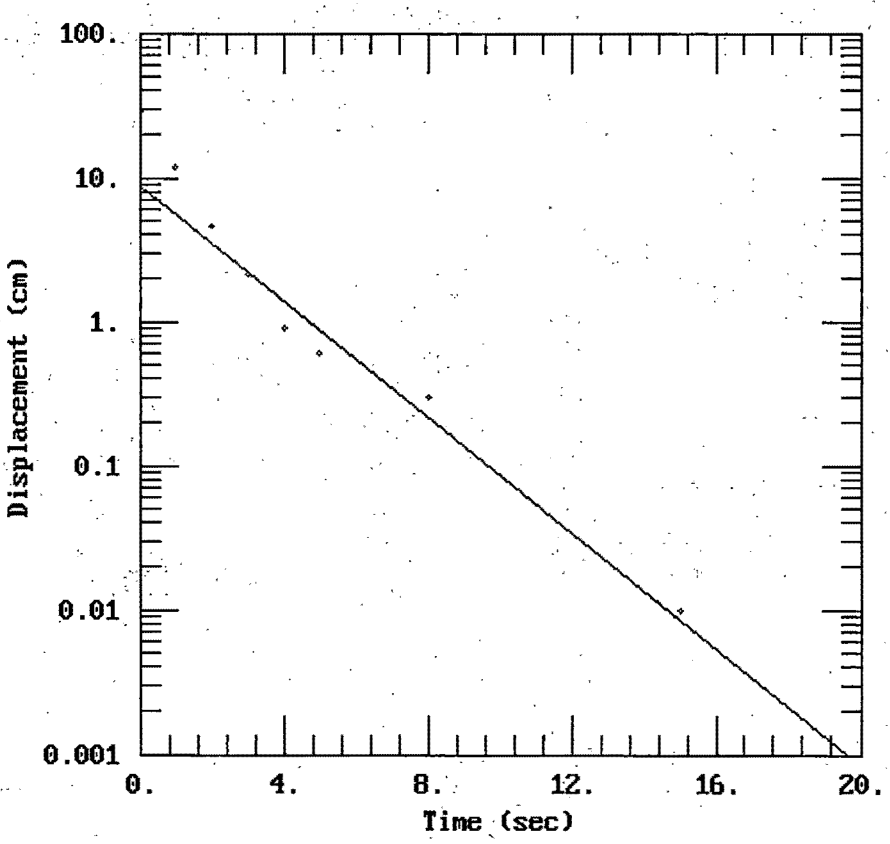
DATA SET:
PZ-8D.DAT
07/31/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 66.45 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 2400.6 cm
H = 2400.6 cm

PARAMETER ESTIMATES:
K = 0.0001934 cm/sec
y0 = 62.66 cm



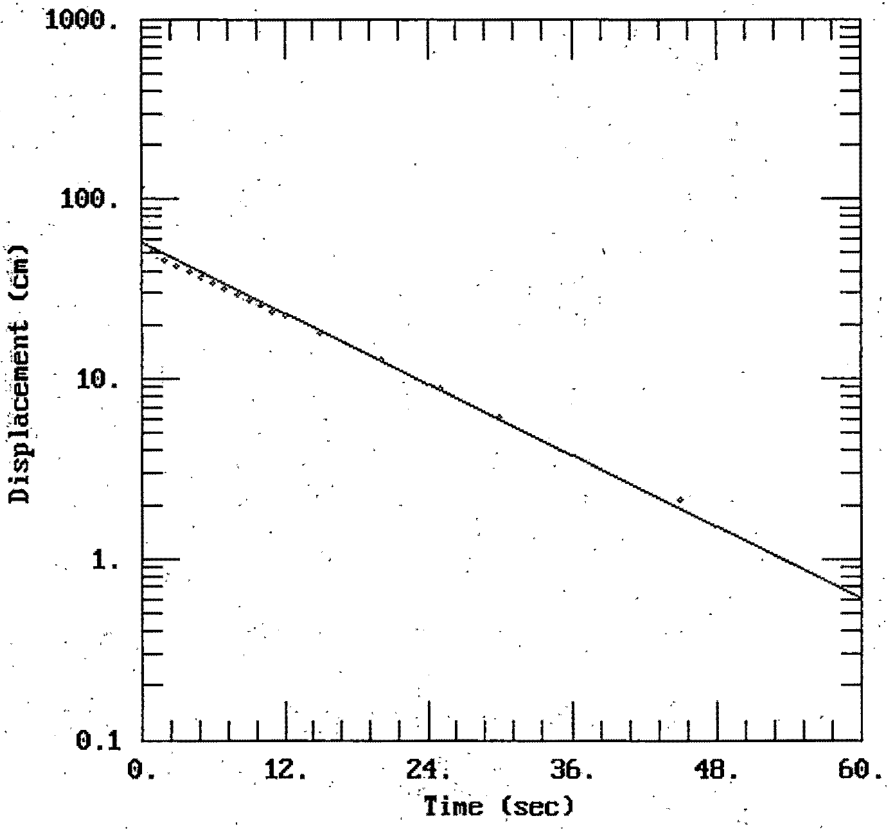
DATA SET:
HAYMW-9.DAT
07/24/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 29.26 cm
$r_c$= 2.54 cm
$r_w$= 10.4 cm
L = 217.3 cm
b = 217.3 cm
H = 217.3 cm

PARAMETER ESTIMATES:
K = 0.0155 cm/sec
y0 = 8.798 cm



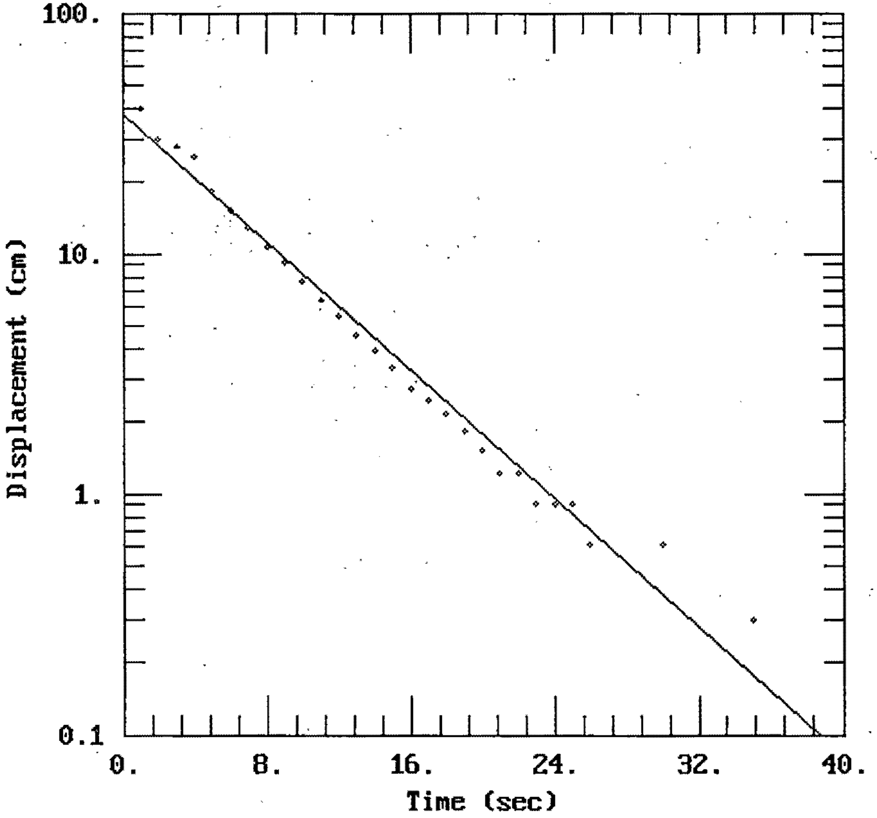
DATA SET:
PZ-9S.DAT
07/31/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 115.8 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 779.4 cm
H = 779.4 cm

PARAMETER ESTIMATES:
K = 0.004498 cm/sec
y0 = 57.83 cm



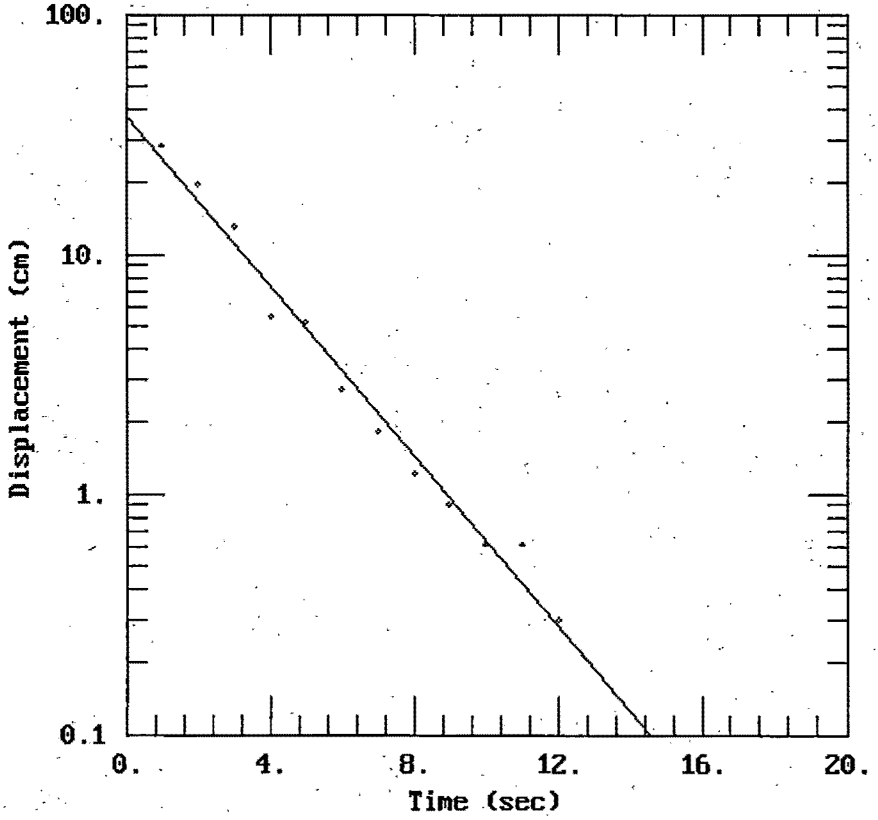
DATA SET:
PZ-9D.DAT
07/31/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 51.51 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 2286.7 cm
H = 2286.7 cm

PARAMETER ESTIMATES:
K = 0.01062 cm/sec
y0 = 37.94 cm



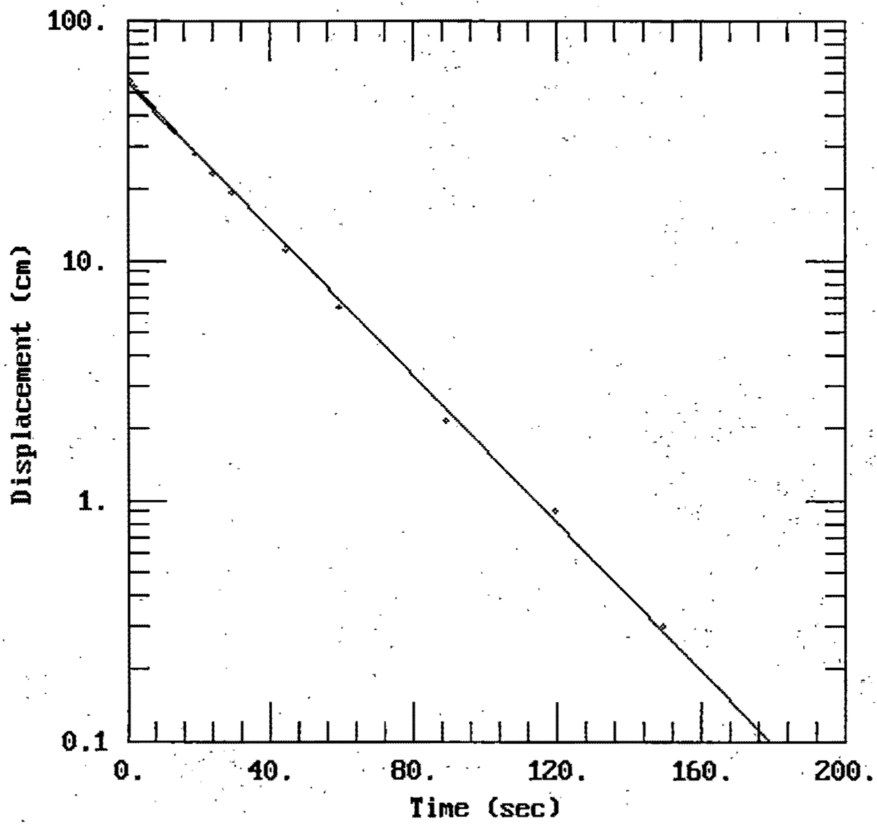
DATA SET:
MW-10.DAT
07/24/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 132. cm
$r_c$= 2.54 cm
$r_w$= 21.03 cm
L = 200.3 cm
b = 200.3 cm
H = 200.3 cm

PARAMETER ESTIMATES:
K = 0.01058 cm/sec
y0 = 37.52 cm



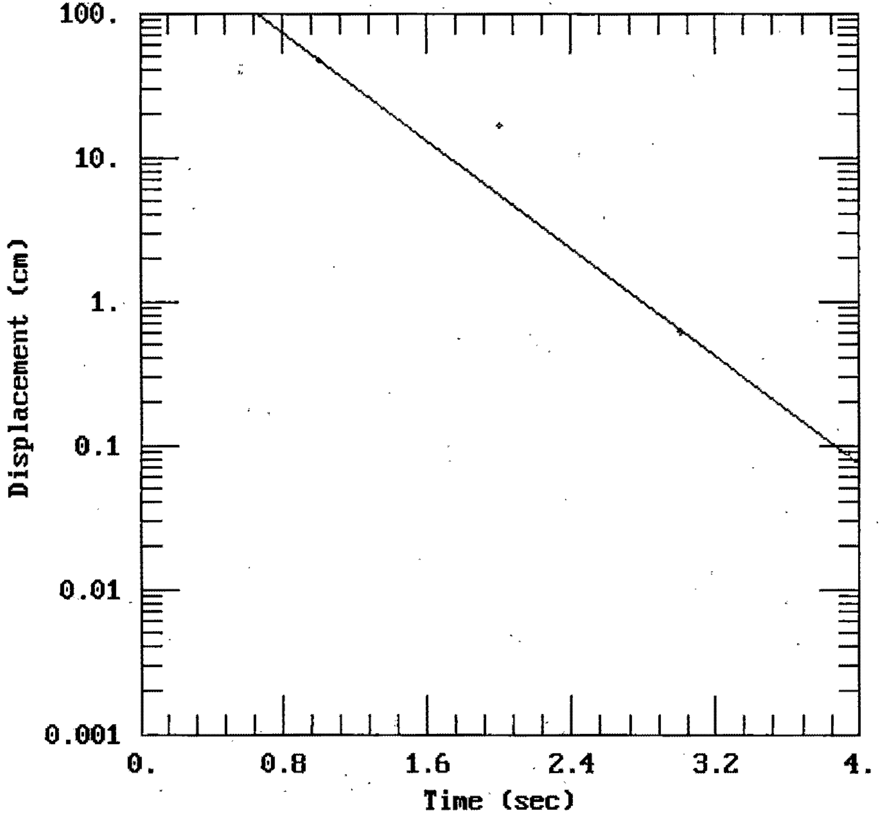
DATA SET:
PZ-10S.DAT
08/01/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 57.3 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 977.8 cm
H = 977.8 cm

PARAMETER ESTIMATES:
K = 0.002172 cm/sec
y0 = 54.88 cm



DATA SET:
PZ-10D.DAT
08/01/95

AQUIFER MODEL:
Unconfined

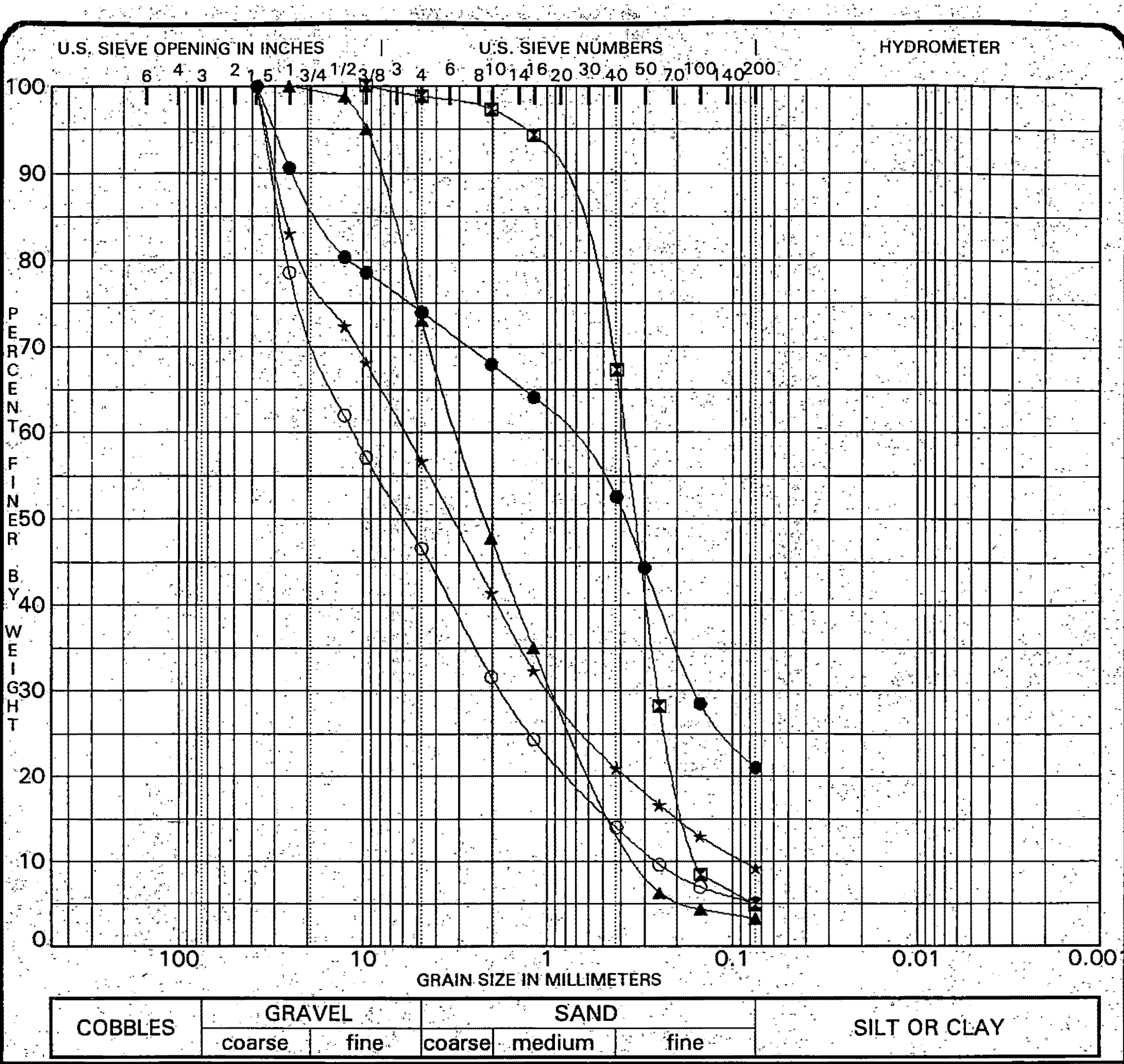
SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 86.87 cm
$r_c$= 2.54 cm
$r_w$= 10.41 cm
L = 152.4 cm
b = 2477.4 cm
H = 2477.4 cm

PARAMETER ESTIMATES:
K = 0.2313 cm/sec
y0 = 409.2 cm

# Appendix H

## Geotechnical Laboratory Analytical Results



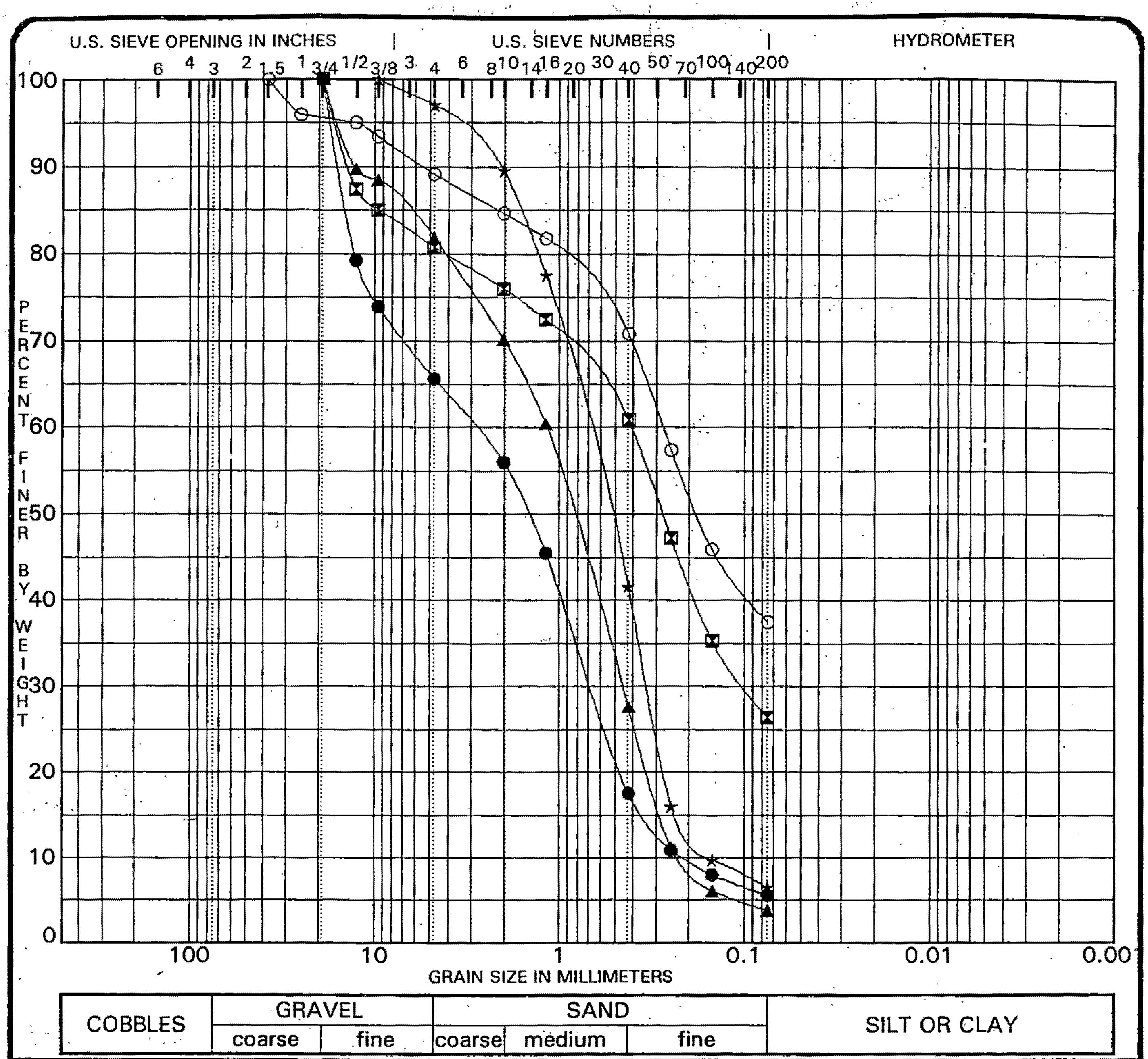
| Specimen Identification | | Classification | MC% | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ● | PZ-10, 96-100' | SILTY SAND with GRAVEL SM | | NP | NP | NP | | |
| ☒ | MW-6, 14-18' | POORLY GRADED SAND with SILT SP-SM | | NP | NP | NP | 1.09 | 2.5 |
| ▲ | PZ-6S, 48-50' | POORLY GRADED SAND with GRAVEL SP | | NP | NP | NP | 0.87 | 10.0 |
| ★ | PZ-6D, 90-96' | WELL GRADED SAND with SILT and GRAVEL SW-SM | | NP | NP | NP | 1.82 | 66.6 |
| ○ | MW-7, 34.5-36.5' | WELL GRADED GRAVEL with SILT and SAND GW-GM | | NP | NP | NP | 1.08 | 42.6 |

| Specimen Identification | | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|
| ● | PZ-10, 96-100' | 37.50 | 0.82 | 0.160 | | 26.1 | 52.9 | 21.0 | |
| ☒ | MW-6, 14-18' | 9.50 | 0.38 | 0.256 | 0.1563 | 1.2 | 93.9 | 4.9 | |
| ▲ | PZ-6S, 48-50' | 25.00 | 3.05 | 0.901 | 0.3054 | 27.1 | 69.6 | 3.3 | |
| ★ | PZ-6D, 90-96' | 37.50 | 5.81 | 0.960 | 0.0871 | 43.3 | 47.5 | 9.2 | |
| ○ | MW-7, 34.5-36.5' | 37.50 | 11.18 | 1.782 | 0.2624 | 53.4 | 41.5 | 5.1 | |

PROJECT Hayward Landfill ECA -
JOB NO. HAYWA9503
DATE 7/12/95

# GRADATION CURVES

SEH, Inc
Chippewa Falls



| Specimen Identification | | Classification | MC% | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ● | PZ-7S, 58-59.3' | POORLY GRADED SAND with SILT and GRAVEL SP-SM | | NP | NP | NP | 0.73 | 13.4 |
| ⊠ | PZ-7D, 96-98' | SILTY SAND with GRAVEL SM | | NP | NP | NP | | |
| ▲ | MW-8, 23-25' | POORLY GRADED SAND with GRAVEL SP | | NP | NP | NP | 0.81 | 5.3 |
| ★ | PZ-8S, 48-50' | POORLY GRADED SAND with SILT SP-SM | | NP | NP | NP | 1.01 | 4.7 |
| ⊙ | PZ-8D, 96-98' | SILTY SAND SM | | NP | NP | NP | | |

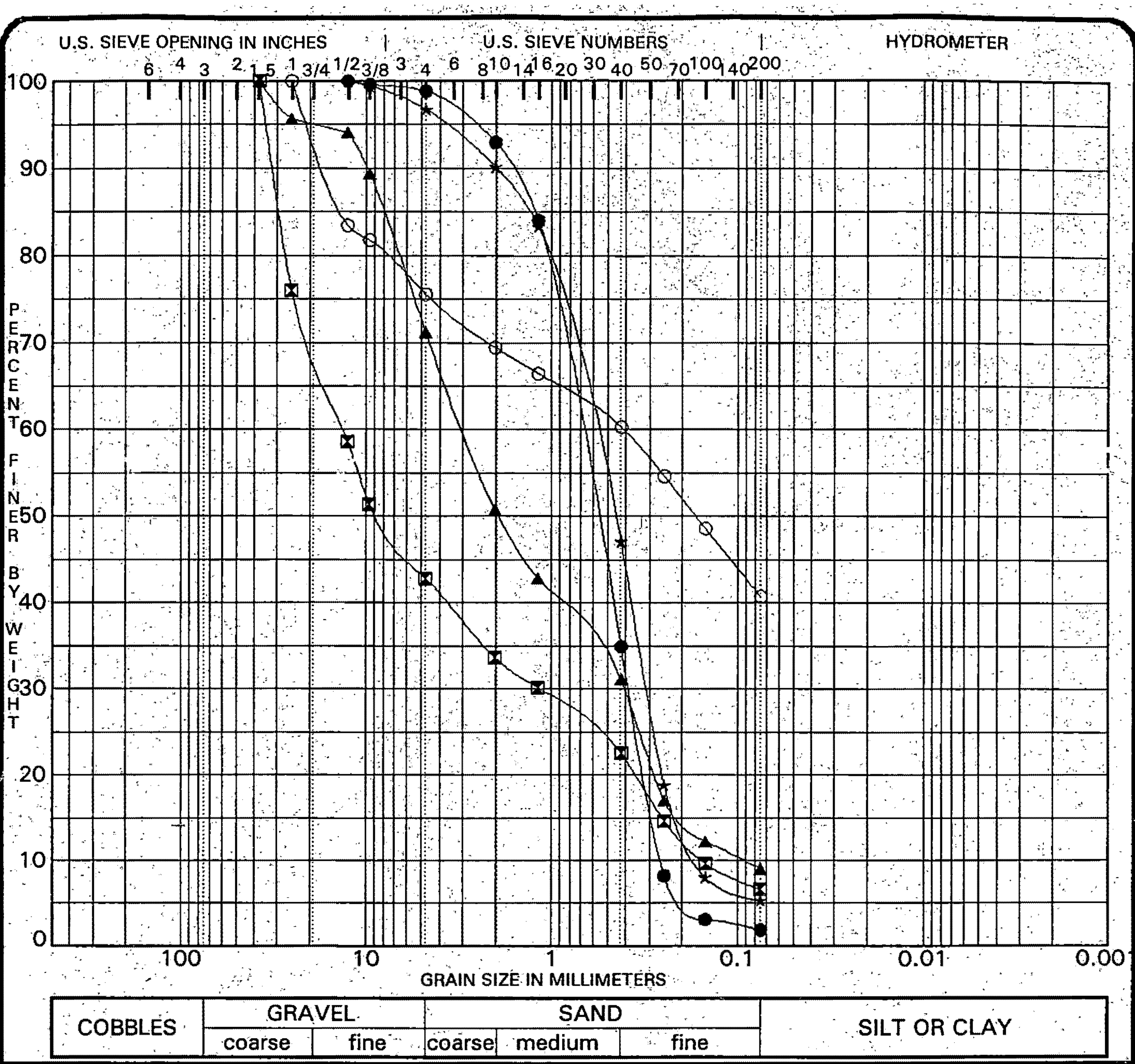
| Specimen Identification | | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|
| ● | PZ-7S, 58-59.3' | 19.00 | 2.87 | 0.671 | 0.2133 | 34.4 | 60.0 | 5.6 | |
| ⊠ | PZ-7D, 96-98' | 19.00 | 0.41 | 0.099 | | 19.3 | 54.3 | 26.4 | |
| ▲ | MW-8, 23-25' | 19.00 | 1.17 | 0.458 | 0.2217 | 18.2 | 78.0 | 3.8 | |
| ★ | PZ-8S, 48-50' | 9.50 | 0.72 | 0.334 | 0.1537 | 3.0 | 90.5 | 6.5 | |
| ⊙ | PZ-8D, 96-98' | 37.50 | 0.28 | | | 10.9 | 51.6 | 37.5 | |

PROJECT Hayward Landfill ECA -

JOB NO. HAYWA9503
DATE 7/12/95

# GRADATION CURVES

SEH, Inc
Chippewa Falls



| Specimen Identification | Classification | MC% | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|
| ● MW-9, 24-26' | POORLY GRADED SAND SP | | NP | NP | NP | 0.80 | 2.8 |
| ⊠ PZ-9S, 46-48' | POORLY GRADED GRAVEL with SILT and SAND GP-GM | | NP | NP | NP | 0.66 | 84.6 |
| ▲ PZ-9D, 96-98' | POORLY GRADED SAND with SILT and GRAVEL SP-SM | | NP | NP | NP | 0.60 | 31.9 |
| ★ MW-10, 20-22' | POORLY GRADED SAND with SILT SP-SM | | NP | NP | NP | 0.94 | 3.7 |
| ⊙ PZ-10S, 45-47' | SILTY SAND with GRAVEL SM | | NP | NP | NP | | |

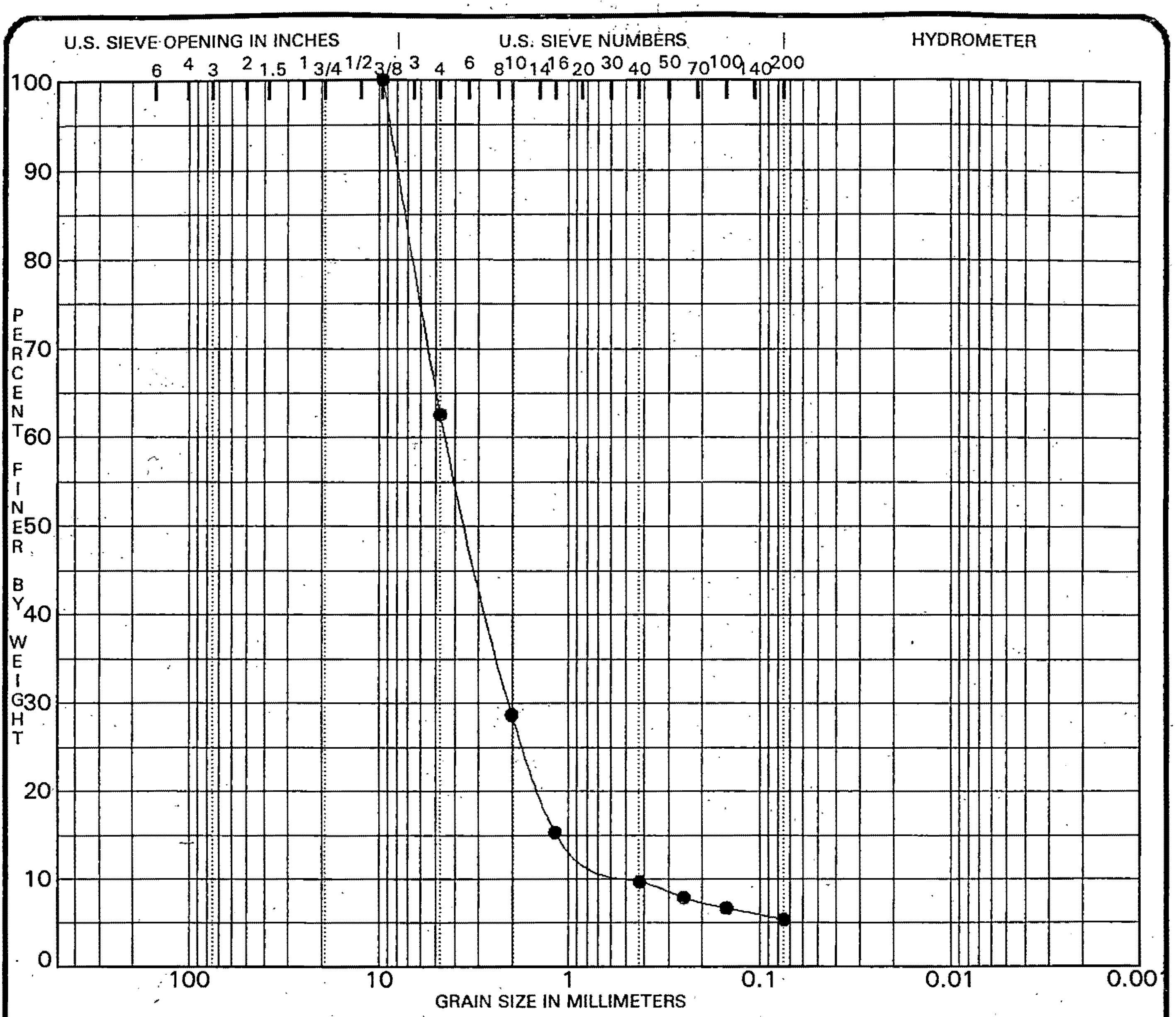
| Specimen Identification | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|
| ● MW-9, 24-26' | 12.50 | 0.72 | 0.386 | 0.2591 | 1.2 | 96.9 | 1.9 | |
| ⊠ PZ-9S, 46-48' | 37.50 | 13.22 | 1.164 | 0.1563 | 57.2 | 36.2 | 6.6 | |
| ▲ PZ-9D, 96-98' | 37.50 | 2.97 | 0.408 | 0.0931 | 28.9 | 62.1 | 9.0 | |
| ★ MW-10, 20-22' | 12.50 | 0.61 | 0.308 | 0.1649 | 3.3 | 91.4 | 5.3 | |
| ⊙ PZ-10S, 45-47' | 25.00 | 0.41 | | | 24.5 | 34.8 | 40.7 | |

PROJECT Hayward Landfill ECA -

JOB NO. HAYWA9503
DATE 7/12/95

# GRADATION CURVES

SEH, Inc
Chippewa Falls



| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

| Specimen Identification | Classification | MC% | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|
| ● PZ-10D, 96-98' | WELL GRADED SAND with SILT and GRAVEL SW-SM | | NP | NP | NP | 2.14 | 9.9 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Specimen Identification | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|
| ● PZ-10D, 96-98' | 9.50 | 4.45 | 2.067 | 0.4489 | 37.4 | 57.2 | 5.4 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

PROJECT **Hayward Landfill ECA -**

JOB NO. **HAYWA9503**
DATE **7/12/95**

# GRADATION CURVES

**SEH, Inc**
Chippewa Falls

# Appendix I

## Laboratory Analytical Reports

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 1 NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

---

**Sample ID: PZ-1D NLS#: 80751**
Ref. Line 1 of COC 12985 Description: PZ-1D
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 160 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 24 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | 0.26 | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 17 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 7.4 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.4 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 4.4 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.41 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 69 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 0.058 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | 1.7 | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 97 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.19 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 1.8 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 380 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 39 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

---

**Sample ID: PZ-1S NLS#: 80752**
Ref. Line 2 of COC 12985 Description: PZ-1S
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 330 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 3.8 | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 160 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 37 | mg/L | 1.8 | 6.2 | EPA 410.1 | 06/02/95 |
| Chloride, as Cl | 35 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 0.79 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.082 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 280 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 39 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 2100 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.040 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 2.3 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | 0.71 | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 580 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 6.4 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

NLS PROJECT# 15194

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: MW-1** **NLS#: 80753**
Ref. Line 3 of COC 12985 Description: MW-1
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 230 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 3.6 | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 170 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 41 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 17 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.5 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.054 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 210 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 67 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 7600 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.30 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 2.3 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | 0.95 | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 500 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 8.2 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 4 NLS PROJECT# 15194**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

**Sample ID: MW-2 NLS#: 80754**
Ref. Line 4 of COC 12985 Description: MW-2
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 89 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 41 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 6.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 2.5 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 0.67 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 1.8 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.054 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 100 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 0.011 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 6400 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 4.2 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 170 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 9.2 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

**WIS. LAB CERT. NO. 721026460**

## ANALYTICAL REPORT

PAGE: 5 NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: MW-3** **NLS#: 80755**
Ref. Line 5 of COC 12985 Description: MW-3
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 11 | mg/L | 1.0 | 3.4 | EPA 310.2 | 06/06/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 7.7 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 16 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 0.75 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 0.83 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 2.6 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.034 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 15 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 0.077 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 50 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.090 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 2.2 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 120 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 5.5 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 6** **NLS PROJECT# 15194**

**Client:** Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill**
**Project Title: HAYWA9503**

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**Sample ID: MW-4** **NLS#: 80756**
Ref. Line 6 of COC 12985 Description: MW-4
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 560 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 3.4 | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 280 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 40 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 30 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.9 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 0.84 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.078 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 280 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 36 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 6500 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 2.3 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 1.8 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | 1.0 | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 580 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 4.9 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 7** **NLS PROJECT# 15194**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: MW-5** **NLS#: 80757**
Ref. Line 7 of COC 12985 Description: MW-5
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 17 | mg/L | 1.0 | 3.4 | EPA 310.2 | 06/06/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 12 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 16 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 0.72 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 0.74 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.024 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 20 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 0.14 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 30 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/15/95 |
| Nitrogen, NO2 + NO3 as N | 0.080 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 1.5 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 59 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 4.7 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 8 NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-7D NLS#: 80758**
Ref. Line 8 of COC 12985 Description: PZ-7D
Collected: 05/24/95 Received: 05/26/95 Reported: 6/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 470 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 05/31/95 |
| Barium, dis. as Ba by ICP | 130 | ug/L | 5.0 | 5.0 | SW846 6010 | 05/31/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 05/31/95 |
| C.O.D. | 13 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 31 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 0.64 | ug/L | 0.60 | 2.1 | SW846 6010 | 05/31/95 |
| Copper, dis. as Cu by ICP | 9.1 | ug/L | 0.68 | 2.4 | SW846 6010 | 05/31/95 |
| Fluoride, as F | 0.054 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 510 | mg/L | 2.0 | 2.0 | SW846 6010 | 05/31/95 |
| Iron, dis. as Fe by ICP | 0.092 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 05/31/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 05/31/95 |
| Manganese, dis. as Mn by ICP | 580 | ug/L | 0.086 | 0.30 | SW846 6010 | 05/31/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.040 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 2.6 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 05/31/95 |
| Solids, tot. dis. (TDS) | 940 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 9.7 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 05/31/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-7S NLS#: 80759**
Ref. Line 9 of COC 12985 Description: PZ-7S
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 380 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 3.7 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 170 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 35 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 34 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.2 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.086 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 290 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 39 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 3700 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, NO2 + NO3 as N | 0.060 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 2.6 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 540 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/05/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: MW-7** **NLS#: 80760**
Ref. Line 10 of COC 12985 Description: MW-7
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| **Parameter** | **Result** | **Units** | **MDL** | **LOQ** | **Method** | **Date** |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as $CaCO_3$ | 390 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 2.7 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 220 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 31 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 21 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 3.6 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | 3.6 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.074 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as $CaCO_3$ | 370 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 6.9 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | 2.7 | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 19000 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/09/95 |
| Nitrogen, $NO_2$ + $NO_3$ as N | 0.040 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | 2.1 | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 630 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as $SO_4$ | 23 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/05/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-8D NLS#: 80761**
Ref. Line 11 of COC 12985 Description: PZ-8D
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 69 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 1.3 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 16 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 2.7 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 2.0 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.11 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 62 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0092 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 17 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 0.96 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 170 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 8.2 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-8S** **NLS#: 80762**
Ref. Line 12 of COC 12985 Description: PZ-8S
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 71 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 15 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 6.0 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.3 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.086 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 74 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0063 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 4.6 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 1.7 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 140 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill**
**Project Title: HAYWA9503**

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**Sample ID: MW-8** **NLS#: 80763**
Ref. Line 1 of COC 12986 Description: MW-8
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 53 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 19 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 3.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 17 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 0.69 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.046 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 61 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0031 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | 1.5 | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 47 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 2.3 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 140 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 7.8 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 14 NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-9D NLS#: 80764**
Ref. Line 2 of COC 12986 Description: PZ-9D
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 110 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 21 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 6.3 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.077 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 130 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0044 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 14 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 0.38 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 1.5 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 170 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 8.1 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

NLS PROJECT# 15194

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-9S** **NLS#: 80765**
Ref. Line 3 of COC 12986 Description: PZ-9S
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 380 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 1.7 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 180 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 33 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 22 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.4 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | 8.8 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.058 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 380 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.82 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | 1.5 | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 4100 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 680 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 12 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

**Client:** Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description:** Hayward Landfill
**Project Title:** HAYWA9503

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**Sample ID: MW-9 NLS#: 80766**
Ref. Line 4 of COC 12986 Description: MW-9
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 110 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 46 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 4.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 86 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | 1.5 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.030 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 180 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0037 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 30 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 2.2 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 450 | mg/L | 2.0 |  | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/02/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: PZ-10D** **NLS#: 80767**
Ref. Line 5 of COC 12986 Description: PZ-10D
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 60 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | 1.8 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 9.8 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | ND | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 3.5 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.3 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.079 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 70 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0039 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 1.3 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 0.94 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | 1.1 | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 89 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 10 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 18 NLS PROJECT# 15194**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

**Sample ID: PZ-10S NLS#: 80768**
Ref. Line 6 of COC 12986 Description: PZ-10S
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 100 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 21 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 11 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | 1.1 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.037 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 110 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0022 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 2.2 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 2.6 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | 1.6 | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 140 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 8.0 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: MW-10** **NLS#: 80769**
Ref. Line 7 of COC 12986 Description: MW-10
Collected: 05/22/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 100 | mg/L | 2.7 | 9.4 | EPA 310.1 | 05/30/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/01/95 |
| Barium, dis. as Ba by ICP | 20 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/01/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/01/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 05/30/95 |
| Chloride, as Cl | 10 | mg/L | 0.35 | 1.3 | SW846 9251 | 05/31/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 06/01/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 06/01/95 |
| Fluoride, as F | 0.034 | mg/L | 0.010 | 0.030 | EPA 340.2 | 05/31/95 |
| Hardness, tot. (calculation) as CaCO3 | 110 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/01/95 |
| Iron, dis. as Fe by ICP | 0.0026 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/01/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/01/95 |
| Manganese, dis. as Mn by ICP | 8.5 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/01/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/07/95 |
| Nitrogen, NO2 + NO3 as N | 1.5 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/01/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 05/30/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/01/95 |
| Solids, tot. dis. (TDS) | 230 | mg/L | 2.0 | | EPA 160.1 | 05/30/95 |
| Sulfate, dissolved as SO4 | 9.8 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/07/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/01/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/01/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill
Project Title: HAYWA9503

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**Sample ID: DUPE** **NLS#: 80770**
Ref. Line 8 of COC 12986 Description: DUPE
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/05/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

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**Sample ID: Field Blank** **NLS#: 80771**
Ref. Line 9 of COC 12986 Description: Field Blank
Collected: 05/24/95 Received: 05/26/95 Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/05/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 21     NLS PROJECT# 15194**

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI  54729

**Project Description:** Hayward Landfill
**Project Title:** HAYWA9503

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**Sample ID:** Trip Blank     **NLS#:** 80772
Ref. Line 10 of COC 12986   Description: Trip Blank
Collected: 05/24/95   Received: 05/26/95   Reported: 06/15/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | EPA 8260 | 06/05/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

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Please note that analytical results greater than the MDL but less than the LOQ are within a region of "Less-Certain Quantitation". Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

MDL = Method Detection Limit   LOQ = Limit of Quantitation   ND = Not Detected   Date = Date Analysis Performed
DWB = Dry Weight Basis   NA = Not Applicable

Jim Fisher
Jim Fisher
Laboratory Director

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill   Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80751 PZ-1D ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.16 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | 0.043 |
| Chloromethane | 0.031 | 0.11 | 0.089 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.049 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.027 |
| Naphthalene | 0.056 | 0.20 | 0.072 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.069 |
| Toluene | 0.021 | 0.072 | 0.35 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80751 PZ-1D ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.035 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | 0.060 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.081 |

Surrogate Recover on Dibromofluoromethane = 97.7 %
Surrogate Recover on d8-Toluene = 96.5 %
Surrogate Recover on Bromofluorobenzene = 102 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80752 PZ-1S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.064 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | 0.037 |
| Chloromethane | 0.031 | 0.11 | 0.12 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.093 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.23 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.027 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.047 |
| Naphthalene | 0.056 | 0.20 | 0.076 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.067 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.027 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80752 PZ-1S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.053 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.048 |
| ortho-Xylene | 0.054 | 0.19 | 0.068 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.096 |

Surrogate Recover on Dibromofluoromethane = 96.8 %
Surrogate Recover on d8-Toluene = 96.4 %
Surrogate Recover on Bromofluorobenzene = 100 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80753 MW-1 ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.27 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | 0.048 |
| sec-Butylbenzene | 0.029 | 0.10 | 0.075 |
| tert-Butylbenzene | 0.038 | 0.13 | 0.038 |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | 0.051 |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.070 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | 0.047 |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | 0.96 |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.33 |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.16 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 4.7 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.084 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.18 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.082 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.27 |
| Toluene | 0.021 | 0.072 | 0.043 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.081 |
| Trichlorofluoromethane | 0.071 | 0.25 | 0.19 |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80753 MW-1<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.41 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.070 |

Surrogate Recover on Dibromofluoromethane = 96.1 %
Surrogate Recover on d8-Toluene = 99.6 %
Surrogate Recover on Bromofluorobenzene = 97.5 %

# ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80754 MW-2<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.027 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.058 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.23 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.050 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.046 |
| Toluene | 0.021 | 0.072 | 0.065 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.026 |
| Trichlorofluoromethane | 0.071 | 0.25 | 0.092 |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80754 MW-2<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.11 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.093 |

Surrogate Recover on Dibromofluoromethane = 95.2 %
Surrogate Recover on d8-Toluene = 95.6 %
Surrogate Recover on Bromofluorobenzene = 97.0 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80755 MW-3<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.080 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.023 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.031 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80755 MW-3<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.6 %
Surrogate Recover on d8-Toluene = 94.7 %
Surrogate Recover on Bromofluorobenzene = 98.1 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80756 MW-4<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.20 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.091 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | 0.035 |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | 0.39 |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.22 |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.12 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 4.2 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.38 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.19 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.053 |
| Naphthalene | 0.056 | 0.20 | 0.13 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.18 |
| Toluene | 0.021 | 0.072 | 0.084 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.062 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80756 MW-4<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.062 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 1.2 |
| ortho-Xylene | 0.054 | 0.19 | 0.27 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.096 |

Surrogate Recover on Dibromofluoromethane = 98.4 %
Surrogate Recover on d8-Toluene = 95.2 %
Surrogate Recover on Bromofluorobenzene = 94.9 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80757 MW-5<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.079 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.042 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80757 MW-5<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 105 %
Surrogate Recover on d8-Toluene = 103 %
Surrogate Recover on Bromofluorobenzene = 106 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80758 PZ-7D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.27 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | 1.3 |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.068 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.18 |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.042 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.85 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.036 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.11 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.24 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80758 PZ-7D<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.039 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.061 |

Surrogate Recover on Dibromofluoromethane = 95.5 %
Surrogate Recover on d8-Toluene = 97.5 %
Surrogate Recover on Bromofluorobenzene = 99.7 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80759 PZ-7S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.44 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.063 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.38 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 1.4 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.051 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.054 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.21 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.073 |
| Naphthalene | 0.056 | 0.20 | 0.097 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.21 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.080 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

**ANALYTICAL RESULTS: VOCs by EPA 8260-WATER**

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80759 PZ-7S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.086 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.17 |
| ortho-Xylene | 0.054 | 0.19 | 0.21 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.27 |

Surrogate Recover on Dibromofluoromethane = 94.1 %
Surrogate Recover on d8-Toluene = 100 %
Surrogate Recover on Bromofluorobenzene = 95.2 %

# ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80760 MW-7<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.26 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | 0.041 |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | 0.049 |
| Chloromethane | 0.031 | 0.11 | 0.095 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.41 |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.039 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 3.2 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.045 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.031 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.072 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.063 |
| Toluene | 0.021 | 0.072 | 0.094 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.088 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
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Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80760 MW-7<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.19 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.063 |

Surrogate Recover on Dibromofluoromethane = 96.9 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 99.1 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80761 PZ-8D ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.026 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.080 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.048 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.092 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80761 PZ-8D ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.4 %
Surrogate Recover on d8-Toluene = 99.0 %
Surrogate Recover on Bromofluorobenzene = 101 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill   Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80762 PZ-8S<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.092 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.042 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.060 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80762 PZ-8S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 93.6 %
Surrogate Recover on d8-Toluene = 95.0 %
Surrogate Recover on Bromofluorobenzene = 100 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80763 MW-8 ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.065 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.068 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.046 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.026 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80763 MW-8<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 91.2 %
Surrogate Recover on d8-Toluene = 92.6 %
Surrogate Recover on Bromofluorobenzene = 95.8 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80764 PZ-9D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.078 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.034 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.054 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.25 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80764 PZ-9D<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 92.6 %
Surrogate Recover on d8-Toluene = 93.6 %
Surrogate Recover on Bromofluorobenzene = 88.4 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80765 PZ-9S<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.079 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.12 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.37 |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.036 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 1.5 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.088 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.083 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.030 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

**Customer:** Short-Elliott-Hendrickson, Inc.
**Project Description:** Hayward Landfill    **Project Title:** HAYWA9503
**Northern Lake Service Project Number:** 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80765 PZ-9S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.054 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.18 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.069 |

Surrogate Recover on Dibromofluoromethane = 94.9 %
Surrogate Recover on d8-Toluene = 103 %
Surrogate Recover on Bromofluorobenzene = 98.7 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill     Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte | MDL | LOQ | 80766 MW-9 |
|---|---|---|---|
| Name | ug/L | ug/L | ug/L |
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | 0.052 |
| Chloromethane | 0.031 | 0.11 | 0.058 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.021 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80766 MW-9<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.1 %
Surrogate Recover on d8-Toluene = 99.3 %
Surrogate Recover on Bromofluorobenzene = 100 %

**ANALYTICAL RESULTS: VOCs by EPA 8260-WATER**

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte <br>Name | MDL <br>ug/L | LOQ <br>ug/L | 80767 PZ-10D <br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.025 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.088 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.034 |
| Naphthalene | 0.056 | 0.20 | 0.076 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.072 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80767 PZ-10D<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.044 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.064 |

Surrogate Recover on Dibromofluoromethane = 96.0 %
Surrogate Recover on d8-Toluene = 99.1 %
Surrogate Recover on Bromofluorobenzene = 98.8 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80768 PZ-10S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.020 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.11 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.051 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.044 |
| Naphthalene | 0.056 | 0.20 | 0.066 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.13 |
| Toluene | 0.021 | 0.072 | 0.072 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

**ANALYTICAL RESULTS: VOCs by EPA 8260-WATER**

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80768 PZ-10S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.039 |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.055 |

Surrogate Recover on Dibromofluoromethane = 89.5 %
Surrogate Recover on d8-Toluene = 91.4 %
Surrogate Recover on Bromofluorobenzene = 93.9 %

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill   Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80769 MW-10 ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.079 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.042 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.10 |
| Toluene | 0.021 | 0.072 | 0.027 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80769 MW-10<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 99.3 %
Surrogate Recover on d8-Toluene = 97.3 %
Surrogate Recover on Bromofluorobenzene = 98.4 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80770 DUPE<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | 0.040 |
| Chloromethane | 0.031 | 0.11 | 0.067 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.035 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80770 DUPE<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 95.4 %
Surrogate Recover on d8-Toluene = 99.0 %
Surrogate Recover on Bromofluorobenzene = 102 %

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80771 Field Blank ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.10 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.094 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.53 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.16 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80771 Field Blank<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.059 |

Surrogate Recover on Dibromofluoromethane = 98.2 %
Surrogate Recover on d8-Toluene = 98.0 %
Surrogate Recover on Bromofluorobenzene = 102 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 80772 Trip Blank<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.041 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

# ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill    Project Title: HAYWA9503
Northern Lake Service Project Number: 15194

| Analyte Name | MDL ug/L | LOQ ug/L | 80772 Trip Blank ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 89.7 %
Surrogate Recover on d8-Toluene = 96.1 %
Surrogate Recover on Bromofluorobenzene = 99.5 %

**NORTHERN LAKE SERVICE, INC.**
400 NORTH LAKE AVENUE
CRANDON, WI 54520 (715)478-2777

# ORDER OF ANALYSIS

RESULTS ORDERED BY:

CHAIN OF CUSTODY RECORD NUMBER: 12985

QUOTATION NUMBER: 95230

ANALYZE FOR DISSOLVED OR TOTAL PARAMETERS?

SEND RESULTS TO:
SEH ATTN: JOHN GUHL
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729
PHONE: (715) 720-6225 FAX: (715) 720-6300

SEND INVOICE TO:

Note "L" for low level ICP analysis, and "F" for furnace analysis.

Samples on line #s: 1-12 to be analyzed for the parameters checked below:

- ☐ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- Arsenic
- Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☐ Cadmium
- ☐ Calcium
- ☐ C.O.D.
- ☐ Chloride
- ☐ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☐ Copper
- ☐ ____________
- ☐ ____________
- ☐ Cyanide, total
- ☐ Amenable
- ☒ Fluoride
- ☒ Hardness
- ☒ Iron DISSOLVED
- ☒ Lead
- ☐ Magnesium
- ☒ Manganese
- ☒ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☒ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ____________
- ☐ ____________
- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☒ Selenium
- ☐ Silica
- ☒ Silver
- ☐ Sodium
- ☐ Solids, total
- ☒ Tot. dissolved
- ☐ Tot. suspended
- ☒ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☒ Zinc
- ☐ Munic.Sludge,WI List
- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☒ -by EPA 624/8240/[✓ 8260]
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

Samples on line #s: ____________ to be analyzed for the parameters checked below:

- ☐ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- ☐ Arsenic
- ☐ Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☐ Cadmium
- ☐ Calcium
- ☐ C.O.D.
- ☐ Chloride
- ☐ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☐ Copper
- ☐ ____________
- ☐ ____________
- ☐ Cyanide, total
- ☐ Amenable
- ☐ Fluoride
- ☐ Hardness
- ☐ Iron
- ☐ Lead
- ☐ Magnesium
- ☐ Manganese
- ☐ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☐ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ____________
- ☐ ____________
- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☐ Selenium
- ☐ Silica
- ☐ Silver
- ☐ Sodium
- ☐ Solids, total
- ☐ Tot. dissolved
- ☐ Tot. suspended
- ☐ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☐ Zinc
- ☐ Munic.Sludge,WI List
- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☐ -by EPA 624/8240/8260
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

SPECIAL INSTRUCTIONS: ____________

# NORTHERN LAKE SERVICE, INC.

400 NORTH LAKE AVENUE
CRANDON, WI 54520 (715)478-2777

## *ORDER OF ANALYSIS*

RESULTS ORDERED BY:

CHAIN OF CUSTODY RECORD NUMBER: 12986

QUOTATION NUMBER: 95230

ANALYZE FOR DISSOLVED OR TOTAL PARAMETERS?

SEND RESULTS TO:

SEH ATTN: JOHN GUHL
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729
PHONE: (715) 720-6225 FAX: (715) 720-6300

SEND INVOICE TO:

Note "L" for low level ICP analysis, and "F" for furnace analysis.

Samples on line #s: 1-7 to be analyzed for the parameters checked below:

☒ Alkalinity, total
☐ Alkalinity, bicarb.
☐ Aluminum
☐ Antimony
☒ Arsenic
☒ Barium
☐ Beryllium
☐ B.O.D.-5
☐ Boron
☒ Cadmium
☐ Calcium
☒ C.O.D.
☒ Chloride
☒ Chromium
☐ Chromium, hexavalent
☐ Cobalt
☐ Coliform, fecal
☐ Color
☐ Conductivity
☒ Copper
☐ ____
☐ ____

☐ Cyanide, total
☐ Amenable
☒ Fluoride
☒ Hardness
☒ Iron, DISS.
☒ Lead
☐ Magnesium
☒ Manganese
☒ Mercury
☐ Molybdenum
☐ Nickel
☐ Nitrogen, total
☐ Ammonia
☐ Nitrate
☐ Nitrite
☒ Nitrate + Nitrite
☐ Total Kjeldahl
☐ Total Organic
☐ Oil & Grease
☐ pH
☐ ____
☐ ____

☐ Phenols
☐ Phosphorus, total
☐ Tot. reactive
☐ Dis. reactive
☐ Potassium
☒ Selenium
☐ Silica
☒ Silver
☐ Sodium
☐ Solids, total
☒ Tot. dissolved
☐ Tot. suspended
☒ Sulfate
☐ Sulfide
☐ Surfactants (MBAS)
☐ Thallium
☐ Tin
☐ T.O.C.
☐ Turbidity
☐ Vanadium
☒ Zinc
☐ Munic.Sludge,WI List

☐ Acid Extractables by 625/8270
☐ Base/Neutral Extractables by 625/8270
☐ BNAs by 625/8270
☐ Chlorinated Hydrocarbons by 612
☐ Haloethers by 611
☐ Nitrosamines by 607
☐ Pesticides-Organochlorine by 608/8080
☐ Pesticides-Organophosphate by 8141
☐ PCBs by 608/8080
☐ Phenols by GC 604/8040
☐ Phenoxy Acid Herbicides by 8150
☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
☐ TCLP-pesticides/herbicides
☐ VOCs by EPA 601+602 or 8010+8020
☐ -by EPA 8021
☒ -by EPA 624/8240/8260
☐ -by EPA 524.2 (SDWA)
☐ BTEX by 8020
☐ PVOCs by 8020
☐ GRO-WI Modified ☐ GRO+PVOCs
☐ DRO-WI Modified
☐ PAHs by 610LC/8310

Samples on line #s: 8-10 to be analyzed for the parameters checked below:

☐ Alkalinity, total
☐ Alkalinity, bicarb.
☐ Aluminum
☐ Antimony
☐ Arsenic
☐ Barium
☐ Beryllium
☐ B.O.D.-5
☐ Boron
☐ Cadmium
☐ Calcium
☐ C.O.D.
☐ Chloride
☐ Chromium
☐ Chromium, hexavalent
☐ Cobalt
☐ Coliform, fecal
☐ Color
☐ Conductivity
☐ Copper
☐ ____
☐ ____

☐ Cyanide, total
☐ Amenable
☐ Fluoride
☐ Hardness
☐ Iron
☐ Lead
☐ Magnesium
☐ Manganese
☐ Mercury
☐ Molybdenum
☐ Nickel
☐ Nitrogen, total
☐ Ammonia
☐ Nitrate
☐ Nitrite
☐ Nitrate + Nitrite
☐ Total Kjeldahl
☐ Total Organic
☐ Oil & Grease
☐ pH
☐ ____
☐ ____

☐ Phenols
☐ Phosphorus, total
☐ Tot. reactive
☐ Dis. reactive
☐ Potassium
☐ Selenium
☐ Silica
☐ Silver
☐ Sodium
☐ Solids, total
☐ Tot. dissolved
☐ Tot. suspended
☐ Sulfate
☐ Sulfide
☐ Surfactants (MBAS)
☐ Thallium
☐ Tin
☐ T.O.C.
☐ Turbidity
☐ Vanadium
☐ Zinc
☐ Munic.Sludge,WI List

☐ Acid Extractables by 625/8270
☐ Base/Neutral Extractables by 625/8270
☐ BNAs by 625/8270
☐ Chlorinated Hydrocarbons by 612
☐ Haloethers by 611
☐ Nitrosamines by 607
☐ Pesticides-Organochlorine by 608/8080
☐ Pesticides-Organophosphate by 8141
☐ PCBs by 608/8080
☐ Phenols by GC 604/8040
☐ Phenoxy Acid Herbicides by 8150
☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
☐ TCLP-pesticides/herbicides
☐ VOCs by EPA 601+602 or 8010+8020
☐ -by EPA 8021
☒ -by EPA 624/8240/8260
☐ -by EPA 524.2 (SDWA)
☐ BTEX by 8020
☐ PVOCs by 8020
☐ GRO-WI Modified ☐ GRO+PVOCs
☐ DRO-WI Modified
☐ PAHs by 610LC/8310

SPECIAL INSTRUCTIONS: ____

NO. 12985

## NORTHERN LAKE SERVICE, INC.

*Analytical Laboratory and Environmental Services*

400 North Lake Avenue • Crandon, WI 54520
Tel: (715) 478-2777 • Fax: (715) 478-3060

## SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

*Wisconsin Lab Cert. No. 721026460*

RETURN THIS FORM WITH SAMPLES.

CLIENT SEH

PROJECT TITLE HAYWARD LANDFILL

ADDRESS 421 FRENETTE DRIVE

PROJECT NO. HAYWA9503

P.O. NO.

CITY CHIPPEWA FALLS, WI STATE 54729 ZIP WI

CONTACT JOHN GUHL

PHONE (715) 720-6225

| ITEM NO. | NLS LAB. NO. | SAMPLE ID | COLLECTION DATE | COLLECTION TIME | SAMPLE TYPE | GRAB/ COMP. | CONTAINER/PRESERVATIVE 450ml | 60ml | 500ml | | 2 X 40ml | COLLECTION REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 80151 | PZ-1D | 5/24/95 | 11:40 | GW | GRAB | P/N | P/S | P/NP | | S/H | |
| 2. | 80152 | PZ-1S | 5/24/95 | 11:45 | | | F | F | F | | | |
| 3. | 80153 | MW-1 | 5/24/95 | 11:35 | | | | | | | | |
| 4. | 80154 | MW-2 | 5/24/95 | 13:15 | | | | | | | | |
| 5. | 80155 | MW-3 | 5/24/95 | 13:55 | | | | | | | | |
| 6. | 80156 | MW-4 | 5/24/95 | 14:35 | | | | | | | | |
| 7. | 80157 | MW-5 | 5/24/95 | 15:20 | | | | | | | | |
| 8. | 80158 | PZ-7D | 5/24/95 | 10:40 | | | | | | | | |
| 9. | 80159 | PZ-7S | 5/24/95 | 10:20 | | | | | | | | |
| 10. | 80160 | MW-7 | 5/24/95 | 10:15 | | | | | | | | |
| 11. | 80161 | PZ-8D | 5/22/95 | 4:00 | | | | | | | | |
| 12. | 80162 | PZ-8S | 5/22/95 | 15:00 | ↓ | ↓ | ↓ | ↓ | ↓ | | ↓ | |

SAMPLE TYPE:

SW = surface water
WW = wastewater
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
PROD = product
SOIL = soil
SED = sediment
describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
**F = field filtered**

COLLECTED BY (signatures) James
CUSTODY SEAL NO. (IF ANY)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

DISPATCHED BY (signature) James
METHOD OF TRANSPORT UPS Next Day Air
DATE/TIME 5/25/95 13:40

RECEIVED AT NLS BY (signature)
DATE/TIME 5-26-95 @ 10:00
CONDITION
TEMP. 2°

SEAL INTACT? ☑ YES ☐ NO
SEAL #
REMARKS & OTHER INFORMATION

**IMPORTANT:** 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

RECEIVED
JUN 28 1995
SHORT, ELLIOTT, HENDRICKSON
CHIPPEWA FALLS, WI

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 1** **NLS PROJECT# 15388**

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward City Landfill**
**Project Title: HAYWA9503.00**

---

**Sample ID: MW-6** **NLS#: 81701**
Ref: Line 1 of COC 12987 Description: MW-6
Collected: 06/06/95 Received: 06/08/95 Reported: 06/23/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 55 | mg/L | 2.7 | 9.4 | EPA 310.1 | 06/13/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/15/95 |
| Barium, dis. as Ba by ICP | 10 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/15/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/15/95 |
| C.O.D. | 31 | mg/L | 1.8 | 6.2 | EPA 410.1 | 06/19/95 |
| Chloride, as Cl | 1.4 | mg/L | 0.35 | 1.3 | SW846 9251 | 06/14/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 06/15/95 |
| Copper, dis. as Cu by ICP | 1.5 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/15/95 |
| Fluoride, as F | 0.057 | mg/L | 0.010 | 0.030 | EPA 340.2 | 06/14/95 |
| Hardness, tot. (calculation) as CaCO3 | 37 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/15/95 |
| Iron, dis. as Fe by ICP | 0.62 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/15/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/15/95 |
| Manganese, dis. as Mn by ICP | 580 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/15/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/15/95 |
| Nitrogen, NO2 + NO3 as N | 0.55 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/14/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 06/14/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/15/95 |
| Solids, tot. dis. (TDS) | 720 | mg/L | 2.0 |  | EPA 160.1 | 06/12/95 |
| Sulfate, dissolved as SO4 | 9.6 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/20/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/15/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 06/13/95 |

**Additional Comments:** Chloromethane was present in the method blank as a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**NLS PROJECT# 15388**

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward City Landfill**
**Project Title: HAYWA9503.00**

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**Sample ID: PZ-6S** **NLS#: 81702**
Ref. Line 2 of COC 12987 Description: PZ-6S
Collected: 06/06/95 Received: 06/08/95 Reported: 06/23/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 73 | mg/L | 2.7 | 9.4 | EPA 310.1 | 06/13/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 06/15/95 |
| Barium, dis. as Ba by ICP | 16 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/15/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 06/15/95 |
| C.O.D. | 28 | mg/L | 1.8 | 6.2 | EPA 410.1 | 06/19/95 |
| Chloride, as Cl | 1.2 | mg/L | 0.35 | 1.3 | SW846 9251 | 06/14/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 06/15/95 |
| Copper, dis. as Cu by ICP | 11 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/15/95 |
| Fluoride, as F | 0.074 | mg/L | 0.010 | 0.030 | EPA 340.2 | 06/14/95 |
| Hardness, tot. (calculation) as CaCO3 | 59 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/15/95 |
| Iron, dis. as Fe by ICP | 0.16 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/15/95 |
| Lead, dis. as Pb by ICP | 2.8 | ug/L | 1.2 | 4.2 | SW846 6010 | 06/15/95 |
| Manganese, dis. as Mn by ICP | 220 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/15/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/15/95 |
| Nitrogen, NO2 + NO3 as N | 1.1 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/14/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 06/14/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 06/15/95 |
| Solids, tot. dis. (TDS) | 140 | mg/L | 2.0 | | EPA 160.1 | 06/12/95 |
| Sulfate, dissolved as SO4 | 18 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/20/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/15/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/13/95 |

**Additional Comments:** Chloromethane was present in the method blank as a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 3** **NLS PROJECT# 15388**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward City Landfill
Project Title: HAYWA9503.00

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**Sample ID: PZ-6D** **NLS#: 81703**
Ref. Line 3 of COC 12987 Description: PZ-6D
Collected: 06/06/95 Received: 06/08/95 Reported: 06/23/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 81 | mg/L | 2.7 | 9.4 | EPA 310.1 | 06/13/95 |
| Arsenic, dis. as As by ICP | 1.8 | ug/L | 1.1 | 3.9 | SW846 6010 | 06/21/95 |
| Barium, dis. as Ba by ICP | 10 | ug/L | 5.0 | 5.0 | SW846 6010 | 06/21/95 |
| Cadmium, dis. as Cd by ICP | 0.36 | ug/L | 0.23 | 0.81 | SW846 6010 | 06/21/95 |
| C.O.D. | 5.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 06/19/95 |
| Chloride, as Cl | 3.3 | mg/L | 0.35 | 1.3 | SW846 9251 | 06/14/95 |
| Chromium, dis. as Cr by ICP | 1.0 | ug/L | 0.60 | 2.1 | SW846 6010 | 06/21/95 |
| Copper, dis. as Cu by ICP | 1.7 | ug/L | 0.68 | 2.4 | SW846 6010 | 06/21/95 |
| Fluoride, as F | 0.071 | mg/L | 0.010 | 0.030 | EPA 340.2 | 06/14/95 |
| Hardness, tot. (calculation) as CaCO3 | 73 | mg/L | 2.0 | 2.0 | SW846 6010 | 06/21/95 |
| Iron, dis. as Fe by ICP | 0.037 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 06/21/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 06/21/95 |
| Manganese, dis. as Mn by ICP | 36 | ug/L | 0.086 | 0.30 | SW846 6010 | 06/21/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 06/15/95 |
| Nitrogen, NO2 + NO3 as N | 1.5 | mg/L | 0.021 | 0.076 | EPA 353.2 | 06/14/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 06/14/95 |
| Silver, dis. as Ag by ICP | 0.92 | ug/L | 0.62 | 2.2 | SW846 6010 | 06/21/95 |
| Solids, tot. dis. (TDS) | 150 | mg/L | 2.0 | | EPA 160.1 | 06/12/95 |
| Sulfate, dissolved as SO4 | 12 | mg/L | 0.56 | 2.1 | SW846 9036 | 06/20/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 06/21/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 06/13/95 |

**Additional Comments:** Chloromethane was present in the method blank as a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 4** **NLS PROJECT# 15388**

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward City Landfill**
**Project Title: HAYWA9503.00**

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**Sample ID: Trip Blank** **NLS#: 81704**
Ref. Line 4 of COC 12987 Description: Trip Blank
Collected: 06/06/95 Received: 06/08/95 Reported: 06/23/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | EPA 8260 | 06/13/95 |

**Additional Comments:** Chloromethane was present in the method blank as a laboratory contaminant.

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Please note that analytical results greater than the MDL but less than the LOQ are within a region of "Less-Certain Quantitation". Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

MDL = Method Detection Limit
LOQ = Limit of Quantitation
ND = Not Detected
Date = Date Analysis Performed
DWB = Dry Weight Basis
NA = Not Applicable

Jim Fisher

Jim Fisher
Laboratory Director

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte Name | MDL ug/L | LOQ ug/L | 81701 MW-6 ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.13 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.31 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.40 |
| Toluene | 0.021 | 0.072 | 0.28 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | 0.14 |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
Page: 2

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 81701 MW-6<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 94.3 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 103 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 81702 PZ-6S<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.021 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.14 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.036 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.15 |
| Toluene | 0.021 | 0.072 | 0.039 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 81702 PZ-6S<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 101 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 96.9 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte Name | MDL ug/L | LOQ ug/L | 81703 PZ-6D ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.17 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.073 |
| Toluene | 0.021 | 0.072 | 0.14 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 81703 PZ-6D<br>ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.7 %
Surrogate Recover on d8-Toluene = 99.6 %
Surrogate Recover on Bromofluorobenzene = 96.5 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte Name | MDL ug/L | LOQ ug/L | 81704 Trip Blank ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.083 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | ND |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.065 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward City Landfill    Project Title: HAYWA9503.00
Northern Lake Service Project Number: 15388

| Analyte Name | MDL ug/L | LOQ ug/L | 81704 Trip Blank ug/L |
|---|---|---|---|
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 89.9 %
Surrogate Recover on d8-Toluene = 99.7 %
Surrogate Recover on Bromofluorobenzene = 96.9 %

## NORTHERN LAKE SERVICE, INC.

## NONCOMPLIANCE FOR ENVIRONMENTAL SAMPLES
## (FOR COMPLIANCE MONITORING SAMPLES)

Client: SEH

Date: 6-8-95

Address: ______

NLS Project Number: 12987

| NC REFERENCE NUMBER | DESCRIPTION OF NON COMPLIANCE |
|---|---|
| 1 | Sample(s) received at ______ °C which is above EPA protocol of 4 °C. |
| 2 | Sample(s) received frozen or partially frozen. |
| 3 | Sample(s) not properly preserved per EPA protocol for: (List Analytes): → |
| 4 | Sample(s) received in bottles not furnished by NLS. Chemical preservation methods, if used, are unknown. |
| 5 | Sample(s) received beyond EPA holding time for:<br>ANALYTE / EPA HOLD TIME / PAST EPA HOLD TIME |
| 6 | Sampling Date / Time not supplied by client. The actual holding time is unknown to NLS. |
| 7 | Sample(s) received without proper paperwork. (Explain): → |
| 8 | Sample(s) not field filtered for dissolved metals (Including hardness). Lab filtered upon sample receipt, if analyzed. |
| 9 | VOC vial(s) received with headspace which does not conform to EPA protocol. Explanation, if any: → |
| 10 | Insufficient sample size to complete analysis. (List Samples): → |

11 Packed in vermiculite & ice - very messy!!

QA-17 (6/94)

NLS Representative's Signature: ______

# NORTHERN LAKE SERVICE, INC.

400 NORTH LAKE AVENUE
CRANDON, WI 54520 (715)478-2777

## *ORDER OF ANALYSIS*

RESULTS ORDERED BY:

CHAIN OF CUSTODY RECORD NUMBER: 12987

QUOTATION NUMBER: 95230

ANALYZE FOR DISSOLVED OR TOTAL PARAMETERS?

SEND RESULTS TO:

SEH ATTN: JOHN GUHL
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729
PHONE: (715) 720-6225 FAX: (715) 720-6300

SEND INVOICE TO:

Note "L" for low level ICP analysis, and "F" for furnace analysis.

Samples on line #s: 1-4 to be analyzed for the parameters checked below:

- ☒ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- ☒ Arsenic
- ☒ Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☒ Cadmium
- ☐ Calcium
- ☒ C.O.D.
- ☒ Chloride
- ☒ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☒ Copper
- ☐ ______
- ☐ ______

- ☐ Cyanide, total
- ☐ Amenable
- ☒ Fluoride
- ☒ Hardness
- ☒ Iron, DISS.
- ☒ Lead
- ☐ Magnesium
- ☒ Manganese
- ☒ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☒ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ______
- ☐ ______

- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☒ Selenium
- ☐ Silica
- ☒ Silver
- ☐ Sodium
- ☐ Solids, total
- ☒ Tot. dissolved
- ☐ Tot. suspended
- ☒ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☒ Zinc
- ☐ Munic.Sludge,WI List

- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☒ -by EPA 624/8240/8260
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

Samples on line #s: ______ to be analyzed for the parameters checked below:

- ☐ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- ☐ Arsenic
- ☐ Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☐ Cadmium
- ☐ Calcium
- ☐ C.O.D.
- ☐ Chloride
- ☐ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☐ Copper
- ☐ ______
- ☐ ______

- ☐ Cyanide, total
- ☐ Amenable
- ☐ Fluoride
- ☐ Hardness
- ☐ Iron
- ☐ Lead
- ☐ Magnesium
- ☐ Manganese
- ☐ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☐ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ______
- ☐ ______

- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☐ Selenium
- ☐ Silica
- ☐ Silver
- ☐ Sodium
- ☐ Solids, total
- ☐ Tot. dissolved
- ☐ Tot. suspended
- ☐ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☐ Zinc
- ☐ Munic.Sludge,WI List

- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☐ -by EPA 624/8240
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

SPECIAL INSTRUCTIONS: ______

**NO.** 12987

# NORTHERN LAKE SERVICE, INC.

*Analytical Laboratory and Environmental Services*

400 North Lake Avenue • Crandon, WI 54520
Tel: (715) 478-2777 • Fax: (715) 478-3060

# SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

*Wisconsin Lab Cert. No. 721026460*

RETURN THIS FORM WITH SAMPLES.

CLIENT: SEH
PROJECT TITLE: HAYWARD CITY LANDFILL
ADDRESS: 421 FRENETTE DRIVE
PROJECT NO.: HAYWA9503.00
~~P.O.~~ NO.: Quote # 95230
CITY: CHIPPEWA FALLS STATE: WI ZIP: 54729
CONTACT: JOHN GLAHL
PHONE: (715) 720-6200

| ITEM NO. | NLS LAB. NO. | SAMPLE ID | COLLECTION DATE | COLLECTION TIME | SAMPLE TYPE | GRAB/ COMP. | CONTAINER/PRESERVATIVE 750ml | 60ml | 500ml | | 3x40ml | COLLECTION REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | | MW-6 | 6/6/95 | 10:00 | GW | GRAB | P/NF | P/SF | P/NP | | G/H | |
| 2. | [illegible] | PZ-6S | \| | 10:10 | \| | \| | \| | \| | \| | | \| | |
| 3. | [illegible] | PZ-6D | \| | 10:20 | \| | \| | \| | \| | \| | | \| | |
| 4. | [illegible] | TRIP BLANK | \| | 9:45 | \| | \| | \| | \| | \| | | \| | |
| 5. | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | |
| 11. | | | | | | | | | | | | |
| 12. | | | | | | | | | | | | |

SAMPLE TYPE:
SW = surface water
WW = wastewater
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
PROD = product
SOIL = soil
SED = sediment
describe others

CONTAINER
P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION
NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
F = field filtered

COLLECTED BY (signatures): Brian L. Kent
CUSTODY SEAL NO. (IF ANY)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

DISPATCHED BY (signature): Brian L. Kent
METHOD OF TRANSPORT: UPS NEXT DAY AIR
DATE/TIME: 6/7/95 8:30

TVP

RECEIVED AT NLS BY (signature)
DATE/TIME: 6-8-95 10:15
CONDITION: [illegible]
TEMP.

SEAL INTACT? ☐ YES ☐ NO
SEAL #
REMARKS & OTHER INFORMATION

[illegible]

**IMPORTANT:** 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 1 NLS PROJECT# 15863

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

---

**Sample ID: MW-1** **NLS#: 83728**
Ref. Line 1 of COC 13657 Description: MW-1
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 340 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | 3.5 | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 220 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 40 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 14 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.0 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 0.86 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.045 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 200 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 67 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 7500 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.18 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | 0.67 | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 510 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

---

**Sample ID: PZ-1S NLS#: 83729**
Ref. Line 2 of COC 13657 Description: PZ-1S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 340 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | 3.1 | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 170 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 36 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/20/95 |
| Chloride, as Cl | 35 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 2.1 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.056 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 270 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 43 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 2100 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | 0.75 | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 590 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 7.0 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

---

**Sample ID: PZ-1D NLS#: 83730**
Ref. Line 3 of COC 13657 Description: PZ-1D
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 100 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 24 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.82 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 4.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 5.0 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 2.3 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.36 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 71 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.042 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 88 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.040 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 200 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 21 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: MW-2** **NLS#: 83731**
Ref. Line 4 of COC 13657 Description: MW-2
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 140 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 54 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.89 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 8.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 3.4 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.3 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 5.0 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.040 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 120 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | ND | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 8000 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 2.6 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | 0.71 | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 240 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 12 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

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**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: MW-3 NLS#: 83732**
Ref. Line 5 of COC 13657 Description: MW-3
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 14 | mg/L | 1.0 | 3.4 | EPA 310.2 | 07/10/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 9.2 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.88 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 14 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 1.0 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 4.2 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.026 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 16 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.063 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 56 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.090 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 53 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 5.8 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

# ANALYTICAL REPORT

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description:** Hayward Landfill Monitoring
**Project Title:** HAYWA9503

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**Sample ID: MW-4** **NLS#: 83733**
Ref. Line 6 of COC 13657 Description: MW-4
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 560 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | 7.2 | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 630 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 69 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 55 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 2.8 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 2.8 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.067 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 360 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 76 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 6800 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.021 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 950 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 7 NLS PROJECT# 15863

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: MW-5 NLS#: 83734**
Ref. Line 7 of COC 13657 Description: MW-5
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 15 | mg/L | 1.0 | 3.4 | EPA 310.2 | 07/10/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 13 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.94 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 19 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 1.6 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 3.1 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.020 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 17 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.11 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 26 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/26/95 |
| Nitrogen, NO2 + NO3 as N | 0.060 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 76 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 6.7 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/11/95 |

**Additional Comments:** Methylene chloride is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 8 NLS PROJECT# 15863**

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: MW-6 NLS#: 83735**
Ref. Line 8 of COC 13657 Description: MW-6
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 31 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 15 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.82 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 6.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 1.9 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 3.0 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.035 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 31 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.072 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 400 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.20 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 60 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 9.1 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 9 NLS PROJECT# 15863**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: PZ-6S NLS#: 83736**
Ref. Line 9 of COC 13657 Description: PZ-6S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 72 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 13 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.76 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 22 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 1.5 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 11 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.077 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 47 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.26 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 200 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 150 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 12 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**NLS PROJECT# 15863**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: PZ-6D** **NLS#: 83737**
Ref. Line 10 of COC 13657 Description: PZ-6D
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 74 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 11 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.85 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | ND | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 3.5 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 0.68 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 1.5 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.065 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 73 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.0065 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 33 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 1.4 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 120 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 8.6 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/10/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 11** **NLS PROJECT# 15863**

**Client:** Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: MW-7** **NLS#: 83738**
Ref. Line 11 of COC 13657 Description: MW-7
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 380 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | 2.5 | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 210 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.24 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 31 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 20 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 4.3 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 8.3 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.058 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 330 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 6.8 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | 2.3 | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 18000 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | 1.8 | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 620 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 23 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description:** Hayward Landfill Monitoring
**Project Title:** HAYWA9503

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**Sample ID: PZ-7S** **NLS#: 83739**
Ref. Line 12 of COC 13657 Description: PZ-7S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 370 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | 3.4 | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 160 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 37 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 36 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.2 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 1.6 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.050 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 290 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 41 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 4200 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 610 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 6.7 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: PZ-7D NLS#: 83740**
Ref. Line 13 of COC 13658 Description: PZ-7D
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 570 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 140 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.85 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 17 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 30 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 9.5 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.055 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 500 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 0.44 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 1100 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/26/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/19/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 660 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 8.8 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

PAGE: 14 NLS PROJECT# 15863

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: MW-8** **NLS#: 83741**
Ref. Line 14 of COC 13658 Description: MW-8
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 53 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 16 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.78 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 4.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 15 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 1.7 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.036 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 51 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | ND | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 25 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/26/95 |
| Nitrogen, NO2 + NO3 as N | 1.7 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 150 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 7.3 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane and methylene chloride are laboratory contaminants.

# ANALYTICAL REPORT

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: PZ-8S** **NLS#: 83742**
Ref. Line 15 of COC 13658 Description: PZ-8S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 77 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 15 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.86 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 6.2 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.6 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 1.8 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.054 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 78 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | ND | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 3.0 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 1.7 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 140 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 7.6 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 16** **NLS PROJECT# 15863**

**Client:**
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: PZ-8D** **NLS#: 83743**
Ref. Line 16 of COC 13658 Description: PZ-8D
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 71 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 16 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.90 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 3.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 3.4 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.5 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 3.3 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.079 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 63 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | ND | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 9.1 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.99 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 110 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 5.8 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 17 NLS PROJECT# 15863**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

**Sample ID: MW-9** **NLS#: 83744**
Ref. Line 17 of COC 13658 Description: MW-9
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 130 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 26 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.90 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 5.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 63 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | ND | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 4.0 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.028 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 120 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | ND | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 14 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 1.9 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 290 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

PAGE: 18 NLS PROJECT# 15863

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: PZ-9S** **NLS#: 83745**
Ref. Line 18 of COC 13658 Description: PZ-9S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 360 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/10/95 |
| Barium, dis. as Ba by ICP | 190 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/10/95 |
| Cadmium, dis. as Cd by ICP | 0.69 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/10/95 |
| C.O.D. | 33 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 24 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.5 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/10/95 |
| Copper, dis. as Cu by ICP | 5.9 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/10/95 |
| Fluoride, as F | 0.044 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 360 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/10/95 |
| Iron, dis. as Fe by ICP | 1.3 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/10/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/10/95 |
| Manganese, dis. as Mn by ICP | 3900 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/10/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | ND | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/10/95 |
| Solids, tot. dis. (TDS) | 670 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 11 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/10/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/11/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Tel:(715)478-2777 Fax:(715)478-3060

WIS. LAB CERT. NO. 721026460

# ANALYTICAL REPORT

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

**Sample ID: PZ-9D** **NLS#: 83746**
Ref. Line 19 of COC 13658 Description: PZ-9D
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 140 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/11/95 |
| Barium, dis. as Ba by ICP | 20 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/11/95 |
| Cadmium, dis. as Cd by ICP | 0.24 | ug/L | 0.23 | 0.81 | SW846 6010 | 07/11/95 |
| C.O.D. | 3.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 6.5 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.1 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/11/95 |
| Copper, dis. as Cu by ICP | 0.90 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/11/95 |
| Fluoride, as F | 0.057 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 130 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/11/95 |
| Iron, dis. as Fe by ICP | 0.025 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/11/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/11/95 |
| Manganese, dis. as Mn by ICP | 12 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/11/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.43 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/11/95 |
| Solids, tot. dis. (TDS) | 200 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 6.4 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/11/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

NLS PROJECT# 15863

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: MW-10** **NLS#: 83747**
Ref. Line 20 of COC 13658 Description: MW-10
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 110 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/11/95 |
| Barium, dis. as Ba by ICP | 17 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/11/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/11/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 10 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 0.91 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/11/95 |
| Copper, dis. as Cu by ICP | 0.85 | ug/L | 0.68 | 2.4 | SW846 6010 | 07/11/95 |
| Fluoride, as F | 0.033 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 99 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/11/95 |
| Iron, dis. as Fe by ICP | 0.0044 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/11/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/11/95 |
| Manganese, dis. as Mn by ICP | 2.8 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/11/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 1.4 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/11/95 |
| Solids, tot. dis. (TDS) | 170 | mg/L | 2.0 | | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 8.4 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/11/95 |
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 21 NLS PROJECT# 15863**

Client:
Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

Project Description: Hayward Landfill Monitoring
Project Title: HAYWA9503

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**Sample ID: PZ-10S NLS#: 83748**
Ref. Line 21 of COC 13658 Description: PZ-10S
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 100 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/11/95 |
| Barium, dis. as Ba by ICP | 19 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/11/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/11/95 |
| C.O.D. | ND | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 11 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 2.0 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/11/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 07/11/95 |
| Fluoride, as F | 0.032 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 110 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/11/95 |
| Iron, dis. as Fe by ICP | 0.0020 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/11/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/11/95 |
| Manganese, dis. as Mn by ICP | 0.40 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/11/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 2.1 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/11/95 |
| Solids, tot. dis. (TDS) | 180 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 7.6 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/11/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 22 NLS PROJECT# 15863**

**Client:** Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description:** Hayward Landfill Monitoring
**Project Title:** HAYWA9503

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**Sample ID: PZ-10~~A~~D NLS#: 83749**
Ref. Line 22 of COC 13658 Description: PZ-10A
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| Alkalinity, tot. as CaCO3 | 76 | mg/L | 2.7 | 9.4 | EPA 310.1 | 07/11/95 |
| Arsenic, dis. as As by ICP | ND | ug/L | 1.1 | 3.9 | SW846 6010 | 07/11/95 |
| Barium, dis. as Ba by ICP | 10 | ug/L | 5.0 | 5.0 | SW846 6010 | 07/11/95 |
| Cadmium, dis. as Cd by ICP | ND | ug/L | 0.23 | 0.81 | SW846 6010 | 07/11/95 |
| C.O.D. | 2.0 | mg/L | 1.8 | 6.2 | EPA 410.1 | 07/12/95 |
| Chloride, as Cl | 3.0 | mg/L | 0.35 | 1.3 | SW846 9251 | 07/11/95 |
| Chromium, dis. as Cr by ICP | 1.4 | ug/L | 0.60 | 2.1 | SW846 6010 | 07/11/95 |
| Copper, dis. as Cu by ICP | ND | ug/L | 0.68 | 2.4 | SW846 6010 | 07/11/95 |
| Fluoride, as F | 0.060 | mg/L | 0.010 | 0.030 | EPA 340.2 | 07/11/95 |
| Hardness, tot. (calculation) as CaCO3 | 67 | mg/L | 2.0 | 2.0 | SW846 6010 | 07/11/95 |
| Iron, dis. as Fe by ICP | 0.0021 | mg/L | 0.0017 | 0.0059 | SW846 6010 | 07/11/95 |
| Lead, dis. as Pb by ICP | ND | ug/L | 1.2 | 4.2 | SW846 6010 | 07/11/95 |
| Manganese, dis. as Mn by ICP | 0.74 | ug/L | 0.086 | 0.30 | SW846 6010 | 07/11/95 |
| Mercury, dis. as Hg | ND | ug/L | 0.095 | 0.34 | SW846 7470 | 07/19/95 |
| Nitrogen, NO2 + NO3 as N | 0.97 | mg/L | 0.021 | 0.076 | EPA 353.2 | 07/12/95 |
| Selenium, dis. as Se by furnace | ND | ug/L | 1.4 | 5.1 | SW846 7740 | 07/18/95 |
| Silver, dis. as Ag by ICP | ND | ug/L | 0.62 | 2.2 | SW846 6010 | 07/11/95 |
| Solids, tot. dis. (TDS) | 150 | mg/L | 2.0 |  | EPA 160.1 | 07/12/95 |
| Sulfate, dissolved as SO4 | 7.1 | mg/L | 0.56 | 2.1 | SW846 9036 | 07/13/95 |
| Zinc, dis. as Zn by ICP | ND | ug/L | 12 | 12 | SW846 6010 | 07/11/95 |
| VOCs (water) by EPA 8260 | see attached |  |  |  | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

# ANALYTICAL REPORT

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description:** Hayward Landfill Monitoring
**Project Title:** HAYWA9503

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**Sample ID: Dupe** **NLS#: 83750**
Ref. Line 23 of COC 13658 Description: Dupe
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

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**Sample ID: Field** **NLS#: 83751**
Ref. Line 24 of COC 13658 Description: Field
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | SW846 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

**NORTHERN LAKE SERVICE, INC.**
**Analytical Laboratory and Environmental Services**
**400 North Lake Avenue - Crandon, WI 54520**
**Tel:(715)478-2777 Fax:(715)478-3060**

**WIS. LAB CERT. NO. 721026460**

# ANALYTICAL REPORT

**PAGE: 24** **NLS PROJECT# 15863**

Client: Short-Elliott-Hendrickson, Inc.
Attn: John Guhl
421 Frenette Drive
Chippewa Falls, WI 54729

**Project Description: Hayward Landfill Monitoring**
**Project Title: HAYWA9503**

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**Sample ID: Trip Blank** **NLS#: 83752**
Ref. Line 25 of COC 13659 Description: Trip Blank
Collected: 07/05/95 Received: 07/07/95 Reported: 07/27/95

| Parameter | Result | Units | MDL | LOQ | Method | Date |
|---|---|---|---|---|---|---|
| VOCs (water) by EPA 8260 | see attached | | | | EPA 8260 | 07/12/95 |

**Additional Comments:** Chloromethane is a laboratory contaminant.

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Please note that analytical results greater than the MDL but less than the LOQ are within a region of "Less-Certain Quantitation". Results greater than the LOQ are considered to be in the region of "Certain Quantitation".

MDL = Method Detection Limit
DWB = Dry Weight Basis
LOQ = Limit of Quantitation
NA = Not Applicable
ND = Not Detected
Date = Date Analysis Performed

Jim Fisher

Jim Fisher
Laboratory Director

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Page: 1

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83728 MW-1<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.18 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | 0.041 |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.068 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | 1.0 |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.74 |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.092 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 3.6 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.076 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.14 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.055 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.78 |
| Toluene | 0.021 | 0.072 | 0.092 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.060 |
| Trichlorofluoromethane | 0.071 | 0.25 | 0.27 |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83728 MW-1 ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.35 |
| ortho-Xylene | 0.054 | 0.19 | 0.085 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.058 |

Surrogate Recover on Dibromofluoromethane = 100 %
Surrogate Recover on d8-Toluene = 97.4 %
Surrogate Recover on Bromofluorobenzene = 98.8 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83729 PZ-1S<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.13 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.12 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.29 |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.033 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.83 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.046 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.034 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.060 |
| Naphthalene | 0.056 | 0.20 | 0.075 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.10 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.061 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.035 |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83729 PZ-1S<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.13 |
| ortho-Xylene | 0.054 | 0.19 | 0.062 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.11 |

Surrogate Recover on Dibromofluoromethane = 96.7 %
Surrogate Recover on d8-Toluene = 95.4 %
Surrogate Recover on Bromofluorobenzene = 95.9 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
Page: 5

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83730 PZ-1D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.023 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.086 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.033 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.025 |
| Naphthalene | 0.056 | 0.20 | 0.077 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.11 |
| Toluene | 0.021 | 0.072 | 0.082 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.041 |

[illegible]

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

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Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83730 PZ-1D<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.070 |

Surrogate Recover on Dibromofluoromethane = 94.0 %
Surrogate Recover on d8-Toluene = 92.5 %
Surrogate Recover on Bromofluorobenzene = 97.2 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83731 MW-2<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.074 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | ND |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.24 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.15 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.045 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.058 |
| Toluene | 0.021 | 0.072 | 0.052 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.032 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83731 MW-2<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 93.6 %
Surrogate Recover on d8-Toluene = 89.6 %
Surrogate Recover on Bromofluorobenzene = 92.5 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83732 MW-3<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.022 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | ND |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.024 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.028 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
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Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83732 MW-3<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 92.5 %
Surrogate Recover on d8-Toluene = 93.2 %
Surrogate Recover on Bromofluorobenzene = 94.7 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83733 MW-4<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 1.9 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | 0.058 |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | 0.18 |
| Chloroethane | 1.1 | 4.0 | 2.0 |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.050 |
| 2-Chlorotoluene | 0.027 | 0.096 | 0.27 |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | 0.34 |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | 2.8 |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.48 |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.53 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | 0.045 |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 23 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | 0.047 |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.091 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 5.1 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 1.8 |
| p-Isopropyltoluene | 0.036 | 0.13 | 0.072 |
| Methylene Chloride | 0.020 | 0.070 | 0.35 |
| Naphthalene | 0.056 | 0.20 | 1.5 |
| n-Propylbenzene | 0.044 | 0.16 | 0.18 |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 1.1 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.38 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 1.3 |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83733 MW-4<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | 0.41 |
| Vinyl Chloride | 0.026 | 0.092 | 18 |
| ortho-Xylene | 0.054 | 0.19 | 5.3 |
| meta,para-Xylenes | 0.050 | 0.18 | 1.0 |

Surrogate Recover on Dibromofluoromethane = 98.0 %
Surrogate Recover on d8-Toluene = 97.1 %
Surrogate Recover on Bromofluorobenzene = 92.7 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83734 MW-5<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | ND |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.025 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.037 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte | MDL | LOQ | 83734 MW-5 |
|---|---|---|---|
| Name | ug/L | ug/L | ug/L |
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 95.7 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 92.9 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring   Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83735 MW-6 ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.050 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.46 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.040 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.37 |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | 0.25 |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83735 MW-6<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 93.6 %
Surrogate Recover on d8-Toluene = 96.9 %
Surrogate Recover on Bromofluorobenzene = 94.9 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83736 PZ-6S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.038 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.074 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.036 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.038 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.14 |
| Toluene | 0.021 | 0.072 | 0.081 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83736 PZ-6S<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 95.8 %
Surrogate Recover on d8-Toluene = 91.6 %
Surrogate Recover on Bromofluorobenzene = 93.9 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83737 PZ-6D ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.062 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.040 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.022 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83737 PZ-6D<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 99.5 %
Surrogate Recover on d8-Toluene = 95.9 %
Surrogate Recover on Bromofluorobenzene = 94.1 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83738 MW-7<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.15 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.075 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.24 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 2.2 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.078 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.064 |
| Toluene | 0.021 | 0.072 | 0.071 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.062 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
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Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83738 MW-7<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 103 %
Surrogate Recover on d8-Toluene = 102 %
Surrogate Recover on Bromofluorobenzene = 96.9 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83739 PZ-7S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.48 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.11 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.48 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 1.7 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.055 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.040 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.25 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.099 |
| Naphthalene | 0.056 | 0.20 | 0.084 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.13 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.086 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.068 |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83739 PZ-7S ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.26 |
| ortho-Xylene | 0.054 | 0.19 | 0.21 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.21 |

Surrogate Recover on Dibromofluoromethane = 98.2 %
Surrogate Recover on d8-Toluene = 97.7 %
Surrogate Recover on Bromofluorobenzene = 102 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83740 PZ-7D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.29 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | 1.6 |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.058 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.21 |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.061 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.73 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.041 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 0.033 |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.14 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.21 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.040 |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83740 PZ-7D ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 95.2 %
Surrogate Recover on d8-Toluene = 90.6 %
Surrogate Recover on Bromofluorobenzene = 95.6 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83741 MW-8<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.085 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.037 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.026 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.024 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83741 MW-8 ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 101 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 98.1 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring     Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte | MDL | LOQ | 83742 PZ-8S |
|---|---|---|---|
| Name | ug/L | ug/L | ug/L |
| Benzene | 0.020 | 0.071 | 0.033 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.10 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.055 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.072 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83742 PZ-8S<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.055 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 101 %
Surrogate Recover on d8-Toluene = 104 %
Surrogate Recover on Bromofluorobenzene = 97.7 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83743 PZ-8D ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.024 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.046 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.044 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.027 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83743 PZ-8D<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.0 %
Surrogate Recover on d8-Toluene = 99.0 %
Surrogate Recover on Bromofluorobenzene = 97.4 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83744 MW-9<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | ND |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.040 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.034 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83744 MW-9<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 94.7 %
Surrogate Recover on d8-Toluene = 97.7 %
Surrogate Recover on Bromofluorobenzene = 95.3 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83745 PZ-9S<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.40 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | 1.4 |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.088 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.52 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 2.6 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.043 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.085 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.050 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.039 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83745 PZ-9S<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | 0.24 |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 92.9 %
Surrogate Recover on d8-Toluene = 100 %
Surrogate Recover on Bromofluorobenzene = 98.0 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83746 PZ-9D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.059 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.041 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 0.078 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.037 |
| Naphthalene | 0.056 | 0.20 | 0.088 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83746 PZ-9D<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 99.0 %
Surrogate Recover on d8-Toluene = 95.2 %
Surrogate Recover on Bromofluorobenzene = 98.8 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83747 MW-10<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.023 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.054 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.035 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.083 |
| Toluene | 0.021 | 0.072 | 0.038 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83747 MW-10<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 98.7 %
Surrogate Recover on d8-Toluene = 92.8 %
Surrogate Recover on Bromofluorobenzene = 101 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83748 PZ-10S ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.044 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.10 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.051 |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | 0.032 |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.049 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | 0.12 |
| Toluene | 0.021 | 0.072 | 0.095 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.035 |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83748 PZ-10S ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | 0.058 |

Surrogate Recover on Dibromofluoromethane = 96.2 %
Surrogate Recover on d8-Toluene = 98.5 %
Surrogate Recover on Bromofluorobenzene = 99.2 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83749 PZ-10~~A~~ D<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.052 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.030 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83749 PZ-10~~A~~ D ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 97.4 %
Surrogate Recover on d8-Toluene = 98.2 %
Surrogate Recover on Bromofluorobenzene = 95.2 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83750 Dupe ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 1.9 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | 0.053 |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | 0.20 |
| Chloroethane | 1.1 | 4.0 | 1.6 |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.047 |
| 2-Chlorotoluene | 0.027 | 0.096 | 0.28 |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | 0.36 |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | 2.8 |
| Dichlorodifluoromethane | 0.037 | 0.13 | 0.38 |
| 1,1 Dichloroethane | 0.020 | 0.069 | 0.51 |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | 0.042 |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | 20 |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | 0.043 |
| 1,2 Dichloropropane | 0.021 | 0.073 | 0.090 |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 5.1 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | 2.0 |
| p-Isopropyltoluene | 0.036 | 0.13 | 0.085 |
| Methylene Chloride | 0.020 | 0.070 | 0.33 |
| Naphthalene | 0.056 | 0.20 | 1.6 |
| n-Propylbenzene | 0.044 | 0.16 | 0.20 |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 1.1 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | 0.35 |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 1.3 |

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER
Page: 46
Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83750 Dupe<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | 0.40 |
| Vinyl Chloride | 0.026 | 0.092 | 17 |
| ortho-Xylene | 0.054 | 0.19 | 5.2 |
| meta,para-Xylenes | 0.050 | 0.18 | 1.3 |

Surrogate Recover on Dibromofluoromethane = 98.9 %
Surrogate Recover on d8-Toluene = 98.3 %
Surrogate Recover on Bromofluorobenzene = 101 %

ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte Name | MDL ug/L | LOQ ug/L | 83751 Field ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | 0.088 |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.056 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | 0.033 |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 1.3 |
| Naphthalene | 0.056 | 0.20 | 0.11 |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | 0.17 |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | 0.062 |

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83751 Field<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | 0.061 |
| meta,para-Xylenes | 0.050 | 0.18 | 0.13 |

Surrogate Recover on Dibromofluoromethane = 95.5 %
Surrogate Recover on d8-Toluene = 93.8 %
Surrogate Recover on Bromofluorobenzene = 94.4 %

## ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83752 Trip Blank<br>ug/L |
|---|---|---|---|
| Benzene | 0.020 | 0.071 | ND |
| Bromobenzene | 0.033 | 0.12 | ND |
| Bromochloromethane | 0.028 | 0.10 | ND |
| Bromodichloromethane | 0.019 | 0.067 | ND |
| Bromoform | 0.028 | 0.10 | ND |
| Bromomethane | 0.045 | 0.16 | ND |
| n-Butylbenzene | 0.033 | 0.12 | ND |
| sec-Butylbenzene | 0.029 | 0.10 | ND |
| tert-Butylbenzene | 0.038 | 0.13 | ND |
| Carbon Tetrachloride | 0.030 | 0.11 | ND |
| Chlorobenzene | 0.030 | 0.11 | ND |
| Chloroethane | 1.1 | 4.0 | ND |
| Chloroform | 0.037 | 0.13 | ND |
| Chloromethane | 0.031 | 0.11 | 0.041 |
| 2-Chlorotoluene | 0.027 | 0.096 | ND |
| 4-Chlorotoluene | 0.036 | 0.13 | ND |
| Dibromochloromethane | 0.021 | 0.076 | ND |
| 1,2 Dibromo-3-Chloropropane | 0.032 | 0.11 | ND |
| 1,2-Dibromoethane | 0.025 | 0.090 | ND |
| Dibromomethane | 0.028 | 0.10 | ND |
| 1,2 Dichlorobenzene | 0.031 | 0.11 | ND |
| 1,3 Dichlorobenzene | 0.038 | 0.14 | ND |
| 1,4 Dichlorobenzene | 0.052 | 0.18 | ND |
| Dichlorodifluoromethane | 0.037 | 0.13 | ND |
| 1,1 Dichloroethane | 0.020 | 0.069 | ND |
| 1,2 Dichloroethane | 0.029 | 0.10 | ND |
| 1,1 Dichloroethene | 0.029 | 0.10 | ND |
| cis-1,2-Dichloroethene | 0.032 | 0.11 | ND |
| trans-1,2-Dichloroethene | 0.026 | 0.092 | ND |
| 1,2 Dichloropropane | 0.021 | 0.073 | ND |
| 1,3 Dichloropropane | 0.022 | 0.078 | ND |
| 2,2 Dichloropropane | 0.042 | 0.15 | ND |
| 1,1 Dichloropropene | 0.020 | 0.071 | ND |
| cis-1,3-Dichloropropene | 0.029 | 0.10 | ND |
| trans-1,3-Dichloropropene | 0.030 | 0.11 | ND |
| Ethylbenzene | 0.028 | 0.098 | ND |
| Hexachlorobutadiene | 0.032 | 0.12 | ND |
| Isopropylbenzene | 0.023 | 0.080 | ND |
| p-Isopropyltoluene | 0.036 | 0.13 | ND |
| Methylene Chloride | 0.020 | 0.070 | 0.056 |
| Naphthalene | 0.056 | 0.20 | ND |
| n-Propylbenzene | 0.044 | 0.16 | ND |
| Styrene | 0.048 | 0.17 | ND |
| 1,1,1,2 Tetrachloroethane | 0.027 | 0.097 | ND |
| 1,1,2,2 Tetrachloroethane | 0.035 | 0.12 | ND |
| Tetrachloroethene | 0.031 | 0.11 | ND |
| Toluene | 0.021 | 0.072 | ND |
| 1,2,3 Trichlorobenzene | 0.039 | 0.14 | ND |
| 1,2,4 Trichlorobenzene | 0.046 | 0.16 | ND |
| 1,1,1 Trichloroethane | 0.026 | 0.093 | ND |
| 1,1,2 Trichloroethane | 0.035 | 0.12 | ND |
| Trichloroethene | 0.025 | 0.090 | ND |
| Trichlorofluoromethane | 0.071 | 0.25 | ND |
| 1,2,3 Trichloropropane | 0.054 | 0.19 | ND |
| 1,2,4 Trimethylbenzene | 0.035 | 0.12 | ND |

# ANALYTICAL RESULTS: VOCs by EPA 8260-WATER

Customer: Short-Elliott-Hendrickson, Inc.
Project Description: Hayward Landfill Monitoring    Project Title: HAYWA9503
Northern Lake Service Project Number: 15863

| Analyte<br>Name | MDL<br>ug/L | LOQ<br>ug/L | 83752 Trip Blank<br>ug/L |
|---|---|---|---|
| 1,3,5 Trimethylbenzene | 0.028 | 0.099 | ND |
| Vinyl Chloride | 0.026 | 0.092 | ND |
| ortho-Xylene | 0.054 | 0.19 | ND |
| meta,para-Xylenes | 0.050 | 0.18 | ND |

Surrogate Recover on Dibromofluoromethane = 102 %
Surrogate Recover on d8-Toluene = 101 %
Surrogate Recover on Bromofluorobenzene = 96.7 %

**NORTHERN LAKE SERVICE, INC.**

*Analytical Laboratory and Environmental Services*

400 North Lake Avenue • Crandon, WI 54520
Tel: (715) 478-2777 • Fax: (715) 478-3060

NO. 13657

# SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

*Wisconsin Lab Cert. No. 721026460*

1 of 3

RETURN THIS FORM WITH SAMPLES.

CLIENT SEH
PROJECT TITLE HAYWARD LANDFILL MONITORING
ADDRESS 421 FRENETTE DRIVE
PROJECT NO. HAYWA9503
P.O. NO.
CITY CHIPPEWA FALLS STATE WI ZIP 54729
CONTACT JOHN GUHL
PHONE (715) 720-6225

| ITEM NO. | NLS LAB. NO. | SAMPLE ID | COLLECTION DATE | COLLECTION TIME | SAMPLE TYPE | GRAB/ COMP. | CONTAINER/PRESERVATIVE P-NP | P-S | P-N | G-H |  | COLLECTION REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | [illegible] | MW-1 | 7-5-95 | 0130 | GW | Grab | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 10938 |
| 2. | [illegible] | PZ-1S | 7-5-95 | 0130 | " | " | 1F<br>1F | 1F<br>1F | 1F<br>1F | 2'<br>2 |  | 10939 |
| 3. | [illegible] | PZ-1D | 7-5-95 | 0130 | " | " | 1F | 1F | 1F | 2 |  | 10940 |
| 4. | [illegible] | MW-2 | 7-5-95 | 0430 | " | " | " | " | " | " |  | 10941 |
| 5. | [illegible] | ~~[illegible]~~ MW-3 | 7-5-95 | 0400 | " | " | " | " | " | " |  | 10942 |
| 6. | [illegible] | ~~[illegible]~~ MW-4 | 7-5-95 | 0330 | " | " | " | " | " | " |  | 10943 |
| 7. | [illegible] | MW-5 | 7-5-95 | 0500 | " | " | " | " | " | " |  | 10944 |
| 8. | [illegible] | MW-6 | 7-5-95 | 0245 | " | " | " | " | " | " |  | 10945 |
| 9. | [illegible] | PZ-6S | 7-5-95 | 0300 | " | " | " | " | " | " |  | 10946 |
| 10. | [illegible] | PZ-6D | 7-5-95 | 0300 | " | " | " | " | " | " |  | 10947 |
| 11. | [illegible] | MW-7 | 7-5-95 | 1215 | " | " | " | " | " | " |  | 10948 |
| 12. | [illegible] | PZ-7S | 7-5-95 | 1215 | " | " | " | " | " | " |  | 10949 |

SAMPLE TYPE:

| | | |
|---|---|---|
| SW = surface water | DW = drinking water | PROD = product |
| WW = wastewater | TIS = tissue | SOIL = soil |
| GW = groundwater | AIR = air | SED = sediment |

describe others

CONTAINER
P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION
NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
**F = field filtered**

COLLECTED BY (signatures)
CUSTODY SEAL NO. (IF ANY)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

DISPATCHED BY (signature)
METHOD OF TRANSPORT UPS - Next Day Air
DATE/TIME 7/6/95 15:00

RECEIVED AT NLS BY (signature)
DATE/TIME 7-07-95 9:30
CONDITION
TEMP

SEAL INTACT? ☐ YES ☐ NO
SEAL #
REMARKS & OTHER INFORMATION

**IMPORTANT:** 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

**DUPLICATE COPY**

# NORTHERN LAKE SERVICE, INC.

400 NORTH LAKE AVENUE
CRANDON, WI 54520 (715)478-2777

## ORDER OF ANALYSIS

**RESULTS ORDERED BY:**

**CHAIN OF CUSTODY RECORD NUMBER:** 13657, 13658, 13659

**QUOTATION NUMBER:** 95230

**ANALYZE FOR DISSOLVED OR TOTAL PARAMETERS?**

**SEND RESULTS TO:**

SEH ATTN: JOHN GUHL
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729
PHONE: (715) 720-6225 FAX: (715) 720-6360

**SEND INVOICE TO:**

Note "L" for low level ICP analysis, and "F" for furnace analysis.

**Samples on line #s:** 1-22 **to be analyzed for the parameters checked below:**

- ☒ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- ☒ Arsenic
- ☒ Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☒ Cadmium
- ☐ Calcium
- ☒ C.O.D.
- ☒ Chloride
- ☒ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☒ Copper
- ☐ ______
- ☐ ______

- ☐ Cyanide, total
- ☐ Amenable
- ☒ Fluoride
- ☒ Hardness
- ☒ Iron
- ☒ Lead
- ☐ Magnesium
- ☒ Manganese
- ☒ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☒ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ______
- ☐ ______

- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☒ Selenium
- ☐ Silica
- ☒ Silver
- ☐ Sodium
- ☐ Solids, total
- ☒ Tot. dissolved
- ☐ Tot. suspended
- ☒ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☒ Zinc
- ☐ Munic.Sludge,WI List

- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☒ -by EPA 624/8240/[✓ 8260]
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

**Samples on line #s:** 23-25 **to be analyzed for the parameters checked below:**

- ☐ Alkalinity, total
- ☐ Alkalinity, bicarb.
- ☐ Aluminum
- ☐ Antimony
- ☐ Arsenic
- ☐ Barium
- ☐ Beryllium
- ☐ B.O.D.-5
- ☐ Boron
- ☐ Cadmium
- ☐ Calcium
- ☐ C.O.D.
- ☐ Chloride
- ☐ Chromium
- ☐ Chromium, hexavalent
- ☐ Cobalt
- ☐ Coliform, fecal
- ☐ Color
- ☐ Conductivity
- ☐ Copper
- ☐ ______
- ☐ ______

- ☐ Cyanide, total
- ☐ Amenable
- ☐ Fluoride
- ☐ Hardness
- ☐ Iron
- ☐ Lead
- ☐ Magnesium
- ☐ Manganese
- ☐ Mercury
- ☐ Molybdenum
- ☐ Nickel
- ☐ Nitrogen, total
- ☐ Ammonia
- ☐ Nitrate
- ☐ Nitrite
- ☐ Nitrate + Nitrite
- ☐ Total Kjeldahl
- ☐ Total Organic
- ☐ Oil & Grease
- ☐ pH
- ☐ ______
- ☐ ______

- ☐ Phenols
- ☐ Phosphorus, total
- ☐ Tot. reactive
- ☐ Dis. reactive
- ☐ Potassium
- ☐ Selenium
- ☐ Silica
- ☐ Silver
- ☐ Sodium
- ☐ Solids, total
- ☐ Tot. dissolved
- ☐ Tot. suspended
- ☐ Sulfate
- ☐ Sulfide
- ☐ Surfactants (MBAS)
- ☐ Thallium
- ☐ Tin
- ☐ T.O.C.
- ☐ Turbidity
- ☐ Vanadium
- ☐ Zinc
- ☐ Munic.Sludge,WI List

- ☐ Acid Extractables by 625/8270
- ☐ Base/Neutral Extractables by 625/8270
- ☐ BNAs by 625/8270
- ☐ Chlorinated Hydrocarbons by 612
- ☐ Haloethers by 611
- ☐ Nitrosamines by 607
- ☐ Pesticides-Organochlorine by 608/8080
- ☐ Pesticides-Organophosphate by 8141
- ☐ PCBs by 608/8080
- ☐ Phenols by GC 604/8040
- ☐ Phenoxy Acid Herbicides by 8150
- ☐ TCLP-metals ☐ TCLP-VOCs ☐ TCLP-BNAs
- ☐ TCLP-pesticides/herbicides
- ☐ VOCs by EPA 601+602 or 8010+8020
- ☐ -by EPA 8021
- ☒ -by EPA 624/8240/[✓ 8260]
- ☐ -by EPA 524.2 (SDWA)
- ☐ BTEX by 8020
- ☐ PVOCs by 8020
- ☐ GRO-WI Modified ☐ GRO+PVOCs
- ☐ DRO-WI Modified
- ☐ PAHs by 610LC/8310

**SPECIAL INSTRUCTIONS:** Please note item # changes to correspond w/ the above sample lines.

# Appendix J

## HELP Model Results

```
***************************************************************************
***************************************************************************

 HAYWARD LANDFILL
 ENVIRONMENTAL CONTAMINATION ASSESSMENT
 HELP MODEL, RUN #1, 8/02/95

***************************************************************************
***************************************************************************



                               LAYER  1
                               --------

                      VERTICAL PERCOLATION LAYER
   THICKNESS                          =      4.80 INCHES
   POROSITY                           =      0.4730 VOL/VOL
   FIELD CAPACITY                     =      0.2220 VOL/VOL
   WILTING POINT                      =      0.1040 VOL/VOL
   INITIAL SOIL WATER CONTENT         =      0.2220 VOL/VOL
   SATURATED HYDRAULIC CONDUCTIVITY   =      0.000520000001 CM/SEC


                               LAYER  2
                               --------

                          BARRIER SOIL LINER
   THICKNESS                          =     11.40 INCHES
   POROSITY                           =      0.4710 VOL/VOL
   FIELD CAPACITY                     =      0.3420 VOL/VOL
   WILTING POINT                      =      0.2100 VOL/VOL
   INITIAL SOIL WATER CONTENT         =      0.4710 VOL/VOL
   SATURATED HYDRAULIC CONDUCTIVITY   =      0.000001000000 CM/SEC


                               LAYER  3
                               --------

                      VERTICAL PERCOLATION LAYER
   THICKNESS                          =     12.00 INCHES
```

```
 POROSITY                              =      0.4370 VOL/VOL
 FIELD CAPACITY                        =      0.0620 VOL/VOL
 WILTING POINT                         =      0.0240 VOL/VOL
 INITIAL SOIL WATER CONTENT            =      0.0620 VOL/VOL
 SATURATED HYDRAULIC CONDUCTIVITY      =      0.005799999926 CM/SEC



                             LAYER  4
                             --------

                    VERTICAL PERCOLATION LAYER
 THICKNESS                             =    120.00 INCHES
 POROSITY                              =      0.5200 VOL/VOL
 FIELD CAPACITY                        =      0.2940 VOL/VOL
 WILTING POINT                         =      0.1400 VOL/VOL
 INITIAL SOIL WATER CONTENT            =      0.2940 VOL/VOL
 SATURATED HYDRAULIC CONDUCTIVITY      =      0.000199999995 CM/SEC




                      GENERAL SIMULATION DATA
                      -----------------------

 SCS RUNOFF CURVE NUMBER               =      80.00
 TOTAL AREA OF COVER                   =  430000. SQ FT
 EVAPORATIVE ZONE DEPTH                =      20.00 INCHES
 UPPER LIMIT VEG. STORAGE              =       2.2704 INCHES
 INITIAL VEG. STORAGE                  =       1.1263 INCHES
 INITIAL SNOW WATER CONTENT            =       0.8103 INCHES
 INITIAL TOTAL WATER STORAGE IN
   SOIL AND WASTE LAYERS               =      42.4590 INCHES

           SOIL WATER CONTENT INITIALIZED BY PROGRAM.



                        CLIMATOLOGICAL DATA
                        -------------------

 SYNTHETIC RAINFALL WITH SYNTHETIC DAILY TEMPERATURES AND
 SOLAR RADIATION FOR      MINNE                MINN


 MAXIMUM LEAF AREA INDEX                  = 2.00
 START OF GROWING SEASON (JULIAN DATE)  =  135
 END OF GROWING SEASON (JULIAN DATE)    =  272


        NORMAL MEAN MONTHLY TEMPERATURES, DEGREES FAHRENHEIT

JAN/JUL      FEB/AUG      MAR/SEP      APR/OCT      MAY/NOV      JUN/DEC
```

```
  -------     -------     -------     -------     -------     -------

   11.20       17.50       29.20       46.00       58.50       68.10
   73.10       70.60       60.60       49.60       33.20       19.20


***********************************************************************

     AVERAGE MONTHLY VALUES IN INCHES FOR YEARS    1 THROUGH    5
-----------------------------------------------------------------------

                      JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC
                      ------- ------- ------- ------- ------- -------
  PRECIPITATION
  -------------
    TOTALS              0.51    0.44    1.38    1.65    4.33    3.26
                        3.56    3.20    2.84    1.47    1.31    1.25

    STD. DEVIATIONS     0.19    0.28    0.44    0.80    1.54    1.11
                        1.72    1.89    0.48    0.84    0.65    0.53

  RUNOFF
  ------
    TOTALS              0.000   0.000   0.000   0.000   0.000   0.000
                        0.240   0.235   0.107   0.011   0.000   0.001

    STD. DEVIATIONS     0.000   0.000   0.000   0.000   0.000   0.000
                        0.428   0.514   0.149   0.024   0.000   0.001

  EVAPOTRANSPIRATION
  ------------------
    TOTALS              0.354   0.755   1.383   1.635   3.580   3.006
                        3.322   2.628   2.039   1.528   0.559   0.405

    STD. DEVIATIONS     0.018   0.146   0.342   0.788   1.371   1.098
                        1.367   1.324   0.675   0.831   0.512   0.144

  PERCOLATION FROM LAYER  2
  -------------------------
    TOTALS              0.1769  0.1783  0.2459  0.1402  0.5311  0.1489
                        0.2768  0.2086  0.3089  0.3654  0.2727  0.5926

    STD. DEVIATIONS     0.1318  0.1998  0.2817  0.1452  0.2901  0.1659
                        0.3080  0.2498  0.1414  0.3365  0.4271  0.4400

  PERCOLATION FROM LAYER  4
  -------------------------
    TOTALS              0.2604  0.2308  0.2500  0.2381  0.2412  0.2473
                        0.2543  0.2528  0.2424  0.2598  0.2606  0.2791

    STD. DEVIATIONS     0.1011  0.0793  0.0678  0.0613  0.0594  0.0686
                        0.0643  0.0570  0.0573  0.0627  0.0810  0.0996

***********************************************************************
```

```
************************************************************************

 AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS    1 THROUGH    5
------------------------------------------------------------------------
                                  (INCHES)        (CU. FT.)    PERCENT
                              ----------------   -----------  -------
  PRECIPITATION               25.20   ( 3.971)      902929.    100.00

  RUNOFF                       0.594  ( 0.636)       21292.      2.36

  EVAPOTRANSPIRATION          21.193  ( 2.535)      759423.     84.11

  PERCOLATION FROM LAYER  2    3.4462 ( 1.1247)     123490.     13.68

  PERCOLATION FROM LAYER  4    3.0168 ( 0.7771)     108104.     11.97

  CHANGE IN WATER STORAGE      0.394  ( 0.986)       14110.      1.56

************************************************************************


************************************************************************

             PEAK DAILY VALUES FOR YEARS    1 THROUGH    5
    ----------------------------------------------------------------
                                          (INCHES)     (CU. FT.)
                                          --------     ---------
       PRECIPITATION                        2.10        75250.0

       RUNOFF                               1.144       40983.8

       PERCOLATION FROM LAYER  2            0.0478       1713.3

       HEAD ON LAYER  2                     5.0

       PERCOLATION FROM LAYER  4            0.0146        521.9

       SNOW WATER                           1.11        39889.9


       MAXIMUM VEG. SOIL WATER (VOL/VOL)        0.4730

       MINIMUM VEG. SOIL WATER (VOL/VOL)        0.0693

************************************************************************
```

```
******************************************************************************

              FINAL WATER STORAGE AT END OF YEAR    5
    ----------------------------------------------------------------
               LAYER       (INCHES)       (VOL/VOL)
               -----       --------       ---------
                 1            1.12          0.2329

                 2            5.37          0.4710

                 3            1.44          0.1196

                 4           36.53          0.3044

             SNOW WATER       0.64

******************************************************************************
******************************************************************************
```

# Appendix K

## Remedial Action Option Cost Summary Tables

**Engineer's Preliminary Cost Projections**
**Remedial Action Option #1 Continued Monitoring/Install Deep Water Supply Wells/Extend Public Water Distribution System/NR140.28 Exemption**

**Project: Hayward Landfill ECA**
**SEH# HAYWA9503**

| | |
|---|---|
| CALC'D BY: MJB | 15-Aug-95 |
| CHECKED BY: GPB/GPW | 15-Aug-95 |

**PRELIMINARY COST PROJECTION SUMMARY - RAO#1**

| | | | |
|---|---|---|---|
| **Design Data Collection Costs:** | | | |
| Private Water Supply Wells GW Analysis | | $11,490 | |
| Landfill Leachate Collection and Analysis | | $17,640 | |
| Fate and Transport Field Data Collection | | $9,680 | |
| Groundwater Contaminant Fate & Transport Model | | $14,700 | |
| Apply for NR140.28 Exemption | | $28,000 | |
| Subtotal, Design Data Collection Costs: | | | $81,510 |
| | | | |
| **Interim Water Supply Remedial Action Costs:** | | | |
| Short Term Commercial Water Supply | | $55,000 | |
| New Water Supply Wells Installation | | $60,000 | |
| Subtotal, Interim Water Supply Remedial Action Costs: | | | $115,000 |
| | | | |
| **Remediation System Capital Costs:** | | | |
| Water Distribution System Extension | | $297,500 | |
| Subtotal: | | $297,500 | |
| Contingency | 20% | $59,500 | |
| Subtotal: | | $357,000 | |
| Planning and Permitting: | 10% | $35,700 | |
| Engineering Testing Design and Bidding | 20% | $71,400 | |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Water Distribution System Extension** | | | $ | $ |
| Mobilization | 1 | ls | 20000 | $20,000 |
| 10" Water Main | 6650 | lf | 30 | $199,500 |
| Fire Hydrants | 12 | ea | 1500 | $18,000 |
| 6" Valves | 12 | ea | 500 | $6,000 |
| 10" Valves | 12 | ea | 1000 | $12,000 |
| Corporation | 12 | ea | 100 | $1,200 |
| 1" Water Service | 600 | lf | 15 | $9,000 |
| Curb Stop & Box | 12 | ea | 150 | $1,800 |
| Casing Pipe | 200 | lf | 150 | $30,000 |
| **Subtotal:** | | | | **$297,500** |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Site Monitoring Costs (4 quarters)** | | | $ | $ |
| Well development labor | 240 | hrs | 50 | $12,000 |
| Analyses -15 monitoring wells | 60 | samples | 500 | $30,000 |
| Sampling Labor (water samples) | 240 | hrs | 50 | $12,000 |
| Monitoring Labor (P, DO, CO2, T, CH4, FID,ETC) | 60 | hrs | 50 | $3,000 |
| Equipment | 20 | days | 500 | $10,000 |
| Reporting | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$70,200** |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Site Maintenance** | | | $ | $ |
| Existing Cover Inspections | 40 | hrs | 50 | $2,000 |
| Cover Repair | 1 | ls | 1000 | $1,000 |
| Vegetation Management | 1 | ls | 3000 | $3,000 |
| Erosion Control | 1 | ls | 2000 | $2,000 |
| **Subtotal:** | | | | **$8,000** |

**Engineer's Preliminary Cost Projections**
**Remedial Action Option #2 Continued Monitoring/Install Deep Water Supply Wells/Groundwater Pump & Treat/Effluent Discharge to Wetland**

**Project: Hayward Landfill ECA**
**SEH# HAYWA9503**

CALC'D 'BY: MJB 15-Aug-95
CHECKED BY: GPB/GPW 15-Aug-95

**PRELIMINARY COST PROJECTION SUMMARY - RAO#2**

| | | | | |
|---|---|---|---|---|
| **Design Data Collection Costs:** | | | | |
| Private Water Supply Wells GW Analysis | | $11,490 | | |
| Landfill Leachate Collection and Analysis | | $17,640 | | |
| GW Pumping Test | | $36,620 | | |
| Fate and Transport Field Data Collection | | $9,680 | | |
| Groundwater Contaminant Fate & Transport Model | | $14,700 | | |
| Subtotal, Design Data Collection Costs: | | | $90,130 | |
| **Interim Water Supply Remedial Action Costs:** | | | | |
| Short Term Commercial Water Supply | | $55,000 | | |
| New Water Supply Wells Installation | | $60,000 | | |
| Subtotal, Interim Water Supply Remedial Action Costs: | | | $115,000 | |
| **Remediation System Capital Costs:** | | | | |
| GW Pumping System | | $276,000 | | |
| GW Treatment System | | $264,000 | | |
| GW Discharge System | | $140,500 | | |
| Subtotal: | | $680,500 | | |
| Contingency | 20% | $136,100 | | |
| Subtotal: | | $816,600 | | |
| Planning and Permitting: | 5% | $40,830 | | |
| Engineering Testing, Design, and Bidding | 10% | $81,660 | | |
| Construction Oversight | 10% | $81,660 | | |
| Subtotal, Remediation System Capital Costs: | | | $1,020,750 | |
| **Subtotal,Initial Capital Costs:** | | | **$1,225,880** | |
| Loan Period (years): | | 20 | | |
| Interest Rate, i: | | 6% | | |
| Amortization Factor: | | 0.0872 | | |
| **Annual Amortized Capital Cost over Loan Period:** | | | | **$106,878** |
| **Long Term Operations, Maintenance, and Monitoring Costs:** | | | | |
| Annual Remediation System O&M Costs | | $56,127 | | |
| Annual Remediation System PerformanceMonitoring Costs | | $21,200 | | |

| | | | | |
|---|---|---|---|---|
| Discharge Pump | 1 | ls | 10000 | $10,000 |
| Flowmeter | 1 | ls | 3000 | $3,000 |
| Controls | 1 | ls | 5000 | $5,000 |
| Misc Electric | 1 | ls | 1000 | $1,000 |
| Misc Piping | 1 | ls | 1000 | $1,000 |
| Startup Labor | 10 | hrs | 50 | $500 |
| **Subtotal:** | | | | $140,500 |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Remediation System O&M Costs** | | | $ | $ |
| O&M Labor | 96 | hrs | 50 | $4,800 |
| Power (75 hp * 365 days) | 490779 | kwhrs | 0.06 | $29,447 |
| Parts Replacement | 3% | cost | 400000 | $12,000 |
| Sludge Disposal | 12 | tons | 100 | $1,200 |
| Carbon Replacement | 800 | lbs | 5 | $4,000 |
| Bag Filter Disposal | 1 | ls | 200 | $200 |
| O&M Status Reports | 64 | hrs | 70 | $4,480 |
| **Subtotal:** | | | | **$56,127** |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Remediation System PerformanceMonitoring Costs** | | | $ | $ |
| Sampling Labor | 48 | hrs | 50 | $2,400 |
| Equipment | 12 | days | 500 | $6,000 |
| Lab Analyses | 48 | sample | 200 | $9,600 |
| Status Reports | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$21,200** |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Site Monitoring (4 Quarters)** | | | $ | $ |
| Well devlopment labor | 240 | hrs | 50 | $12,000 |
| Analyses -15 wells | 60 | samples | 500 | $30,000 |
| Sampling Labor (GW samples) | 240 | hrs | 50 | $12,000 |
| Monitoring Labor (P, DO, CO2, T, CH4, FID,ETC) | 60 | hrs | 50 | $3,000 |
| Equipment | 20 | days | 500 | $10,000 |
| Reporting | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$70,200** |

| | quantity | unit | unit cost | subtotal |
|---|---|---|---|---|
| **Annual Site Maintenance** | | | $ | $ |
| Vegetation Management | 1 | ls | 3000 | $3,000 |
| Erosion Control | 1 | ls | 2000 | $2,000 |
| **Subtotal:** | | | | **$5,000** |

**Engineer's Preliminary Cost Projections**
**Remedial Action Option #3 Continued Monitoring/Install Deep Water Supply Wells/Cap Upgrade**

**Project: Hayward Landfill ECA**
**SEH# HAYWA9503**

CALC'D 'BY: MJB 15-Aug-95
CHECKED BY: GPB/GPW 15-Aug-95

**PRELIMINARY COST PROJECTION SUMMARY - RAO#3**

| | | | |
|---|---|---|---|
| **Design Data Collection Costs:** | | | |
| Private Water Supply Wells GW Analysis | | $11,490 | |
| Landfill Leachate Collection and Analysis | | $17,640 | |
| Existing Cover Soils Analysis | | $14,800 | |
| Fate and Transport Field Data Collection | | $9,680 | |
| Groundwater Contaminant Fate & Transport Model | | $14,700 | |
| Subtotal, Design Data Collection Costs: | | | $68,310 |
| | | | |
| **Interim Water Supply Remedial Action Costs:** | | | |
| Short Term Commercial Water Supply | | $55,000 | |
| New Water Supply Wells Installation | | $60,000 | |
| Subtotal, Interim Water Supply Remedial Action Costs: | | | $115,000 |
| | | | |
| **Remediation System Capital Costs:** | | | |
| Landfill Cap Installation | | $1,035,759 | |
| Subtotal: | | $1,035,759 | |
| Contingency | 20% | $207,152 | |
| Subtotal: | | $1,242,911 | |
| Planning and Permitting: | 2.5% | $31,073 | |
| Engineering Testing, Design, and Bidding | 7.5% | $93,218 | |
| Construction Oversight | 7.5% | $93,218 | |
| Subtotal, Remediation System Capital Costs: | | | $1,460,421 |
| **Subtotal, Initial Capital Costs:** | | | **$1,643,731** |
| Loan Period (years) | | 20 | |
| Interest Rate, i | | 6% | |

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| | | | | |
|---|---|---|---|---|
| Spread Salvaged 6" Topsoil | 8067 | cy | 2 | $16,134 |
| Seeding, Fertilizing, and Mulching | 435.6 | msf | 40 | $17,424 |
| Site Survey | 10 | ac | 1000 | $10,000 |
| **Subtotal:** | | | | **$1,035,759** |

| **Annual Gas Flare O&M Costs** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| O&M Labor | 48 | hrs | 50 | $2,400 |
| Power (20 HP *365 days) | 130874.4 | kwhr | 0.06 | $7,852 |
| Parts Replacement | 5% | cost | 125000 | $6,250 |
| Equipment | 12 | days | 100 | $1,200 |
| Reporting | 32 | hrs | 50 | $1,600 |
| **Subtotal:** | | | | **$19,302** |

| **Annual Site Monitoring (4 quarters)** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| Well development labor | 240 | hrs | 50 | $12,000 |
| Analyses -15 wells | 60 | samples | 500 | $30,000 |
| Sampling Labor (GW samples) | 240 | hrs | 50 | $12,000 |
| Monitoring Labor (P, DO, CO2, T, CH4, FID,ETC) | 60 | hrs | 50 | $3,000 |
| Equipment | 20 | days | 500 | $10,000 |
| Reporting | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$70,200** |

| **Annual Site Maintenance** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| Cap Integrity Inspections | 40 | hrs | 50 | $2,000 |
| Cap Repair | 1 | ls | 2000 | $2,000 |
| Vegetation Management | 1 | ls | 3000 | $3,000 |
| Erosion Control | 1 | ls | 2000 | $2,000 |
| Labor | 40 | hrs | 50 | $2,000 |
| Reporting | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$14,200** |

**Engineer's Preliminary Cost Projections**
**Remedial Action Option #4 Continued Monitoring/Install Deep Water Supply Wells/Gas Extraction and Flare**

**Project: Hayward Landfill ECA**
**SEH# HAYWA9503**

CALC'D 'BY: MJB 15-Aug-95
CHECKED BY: GPB/GPW 15-Aug-95

**PRELIMINARY COST PROJECTION SUMMARY - RAO#4**

| | | | | |
|---|---|---|---|---|
| **Design Data Collection Costs:** | | | | |
| Private Water Supply Wells GW Analysis | | $11,490 | | |
| Landfill Leachate Collection and Analysis | | $17,640 | | |
| Gas Extraction Pilot Test and Analysis | | $33,320 | | |
| Fate and Transport Field Data Collection | | $9,680 | | |
| Groundwater Contaminant Fate & Transport Model | | $14,700 | | |
| Subtotal, Design Data Collection Costs: | | | $86,830 | |
| | | | | |
| **Interim Water Supply Remedial Action Costs:** | | | | |
| Short Term Commercial Water Supply | | $55,000 | | |
| New Water Supply Wells Installation | | $60,000 | | |
| Subtotal, Interim Water Supply Remedial Action Costs: | | | $115,000 | |
| | | | | |
| **Remediation System Capital Costs:** | | | | |
| Gas Collection and Flare System | | $310,000 | | |
| Condensate Recirculation System | | $84,500 | | |
| Subtotal: | | $394,500 | | |
| Contingency | 20% | $78,900 | | |
| Subtotal: | | $473,400 | | |
| Planning and Permitting: | 5% | $23,670 | | |
| Engineering Testing, Design, and Bidding | 15% | $71,010 | | |
| Construction Oversight | 15% | $71,010 | | |
| Subtotal, Remediation System Capital Costs: | | | $639,090 | |
| **Subtotal,Initial Capital Costs:** | | | **$840,920** | |
| Loan Period | | 20 | | |
| Interest Rate, i | | 6% | | |
| Amortization Factor | | 0.0872 | | |
| **Annual Amortized Capital Cost over Loan Period:** | | | | **$73,315** |

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| | | | | |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Misc Piping | 1 | ls | 1000 | $1,000 |
| Startup Labor | 10 | hrs | 50 | $500 |
| **Subtotal:** | | | | **$84,500** |

| **Annual Remediation System O&M Costs** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| O&M Labor | 48 | hrs | 50 | $2,400 |
| Power (30 hp * 365 days) | 196311.6 | kwhrs | 0.06 | $11,779 |
| Parts Replacement | 3% | cost | 200000 | $6,000 |
| O&M Status Reports | 64 | hrs | 70 | $4,480 |
| **Subtotal:** | | | | **$24,659** |

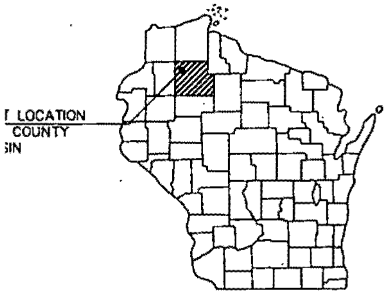
| **Annual Remediation System Performance Monitoring Costs** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| Sampling Labor | 96 | hrs | 50 | $4,800 |
| Equipment | 12 | days | 500 | $6,000 |
| Lab Analyses | 30 | sample | 200 | $6,000 |
| Status Reports | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$20,000** |

| **Annual Site Monitoring (4 quarters)** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| Well development labor | 240 | hrs | 50 | $12,000 |
| Analyses -15 wells | 60 | samples | 500 | $30,000 |
| Sampling Labor (GW samples) | 240 | hrs | 50 | $12,000 |
| Monitoring Labor (P, DO, CO2, T, CH4, FID,ETC) | 60 | hrs | 50 | $3,000 |
| Equipment | 20 | days | 500 | $10,000 |
| Reporting | 64 | hrs | 50 | $3,200 |
| **Subtotal:** | | | | **$70,200** |

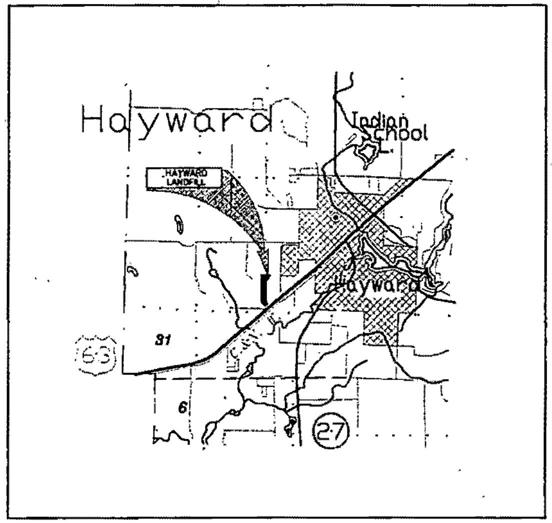
| **Annual Site Maintenance** | **quantity** | **unit** | **unit cost**<br>**$** | **subtotal**<br>**$** |
|---|---|---|---|---|
| Vegetation Management | 1 | ls | 3000 | $3,000 |
| Erosion Control | 1 | ls | 2000 | $2,000 |
| **Subtotal:** | | | | **$5,000** |

# ENVIRONMENTAL CONTAMINATION ASSESSMENT

## CITY OF HAYWARD
## HAYWARD LANDFILL
## (WDNR I.D. NO. 01751)



COUNTY LOCATION MAP



SITE LOCATION MAP
SCALE: 1"=1 MILE

| INDEX | |
|---|---|
| DRAWING NO. | DESCRIPTION |
| 1/8 | TITLE SHEET |
| 2/8 | EXISTING CONDITIONS |
| 3/8 | EXISTING WATER SUPPLY WELL LOCATIONS |
| 4/8 | ADJACENT PROPERTY OWNERS |
| 5/8 | GEOLOGIC CROSS SECTIONS |
| 6/8 | GROUNDWATER CONTOURS |
| 7/8 | GROUNDWATER VINYL CHLORIDE ISOCONCENTRATION MAP |
| 8/8 | GROUNDWATER TOTAL VOC ISOCONCENTRATION MAP |

ARED BY:
RT ELLIOTT HENDRICKSON, INC.
TE MANAGEMENT DEPARTMENT
PEWA FALLS, WISCONSIN

PREPARED FOR:
CITY OF HAYWARD

8/95
8/95

| NO. | BY | DATE | REVISIONS | | DESIGN | CHECKED |
|---|---|---|---|---|---|---|

SEH
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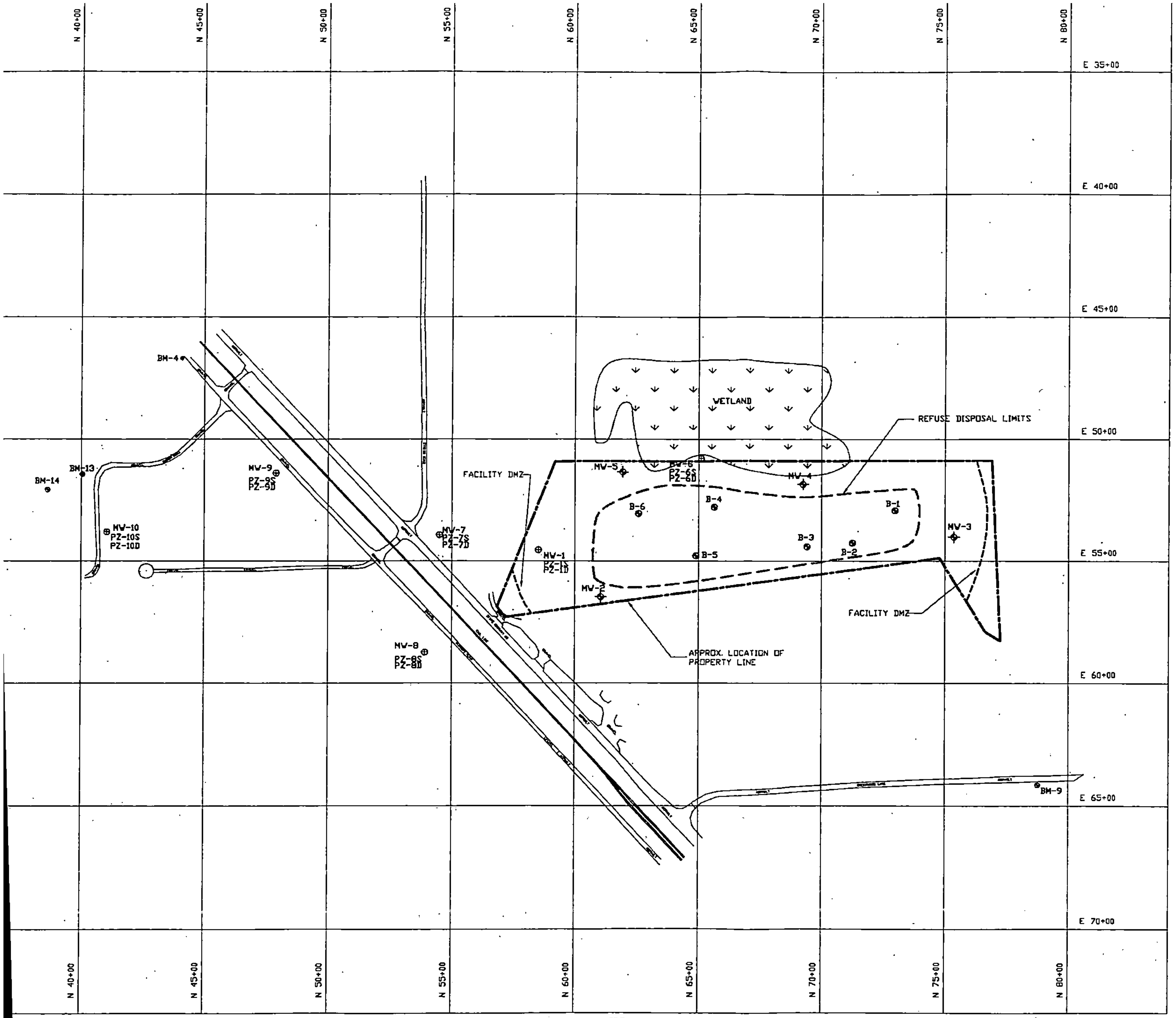
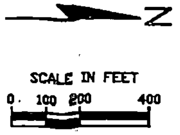
CITY OF HAYWARD
HAYWARD LANDFILL
ECA

TITLE SHEET

FILE NO. HAYW8503
DATE 08/09/95

1/8





## LEGEND

APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO.)

FACILITY DESIGN MANAGEMENT ZONE (DMZ)

APPROXIMATE REFUSE DISPOSAL LIMITS (BASED ON (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO., AND ON SITE OBSERVATIONS BY SEH).

APPROXIMATE WETLAND LOCATION (BASED ON SEH FIELD OBSERVATIONS).

MW-5 ⌖ MONITORING WELL LOCATION AND NUMBER

MW-6 PZ-6S PZ-6D ⊕ MONITORING WELL – PIEZOMETER NEST LOCATION AND NUMBERS

B-6 ● TEMPORARY WELL LOCATION AND NUMBER

BM-4 ● BENCH MARK

NOTES:

1. MONITORING WELLS, PRIVATE WELLS, AND BORING LOCATIONS SURVEYED BY SEH INC., ON MAY 23, 1995.
2. FACILITY DMZ COINCIDES WITH FACILITY PROPERTY LINE WHERE PROPERTY LINE IS WITHIN 300 FT. OF REFUSE DISPOSAL LIMITS.

| MONITORING WELLS, PIEZOMETERS, AND TEMPORARY WELLS | | | |
|---|---|---|---|
| WELL NO. | STATION | TOC ELEVATION (FEET MSL) | COMMENTS |
| MW-1 | 58+51N, 54+54E | 1187.91 | |
| PZ-1S | 58+51N, 54+54E | 1187.85 | |
| PZ-1D | 58+51N, 54+54E | 1187.93 | |
| MW-2 | 61+04N, 56+45E | 1199.20 | |
| MW-3 | 75+33N, 53+99E | 1200.20 | |
| MW-4 | 69+26N, 51+82E | 1188.88 | |
| MW-5 | 61+92N, 51+32E | 1181.03 | |
| MW-6 | 65+10N, 50+78E | 1185.11 | |
| PZ-6S | 65+10N, 50+78E | 1184.70 | |
| PZ-6D | 65+10N, 50+78E | 1184.65 | |
| MW-7 | 54+50N, 53+93E | 1199.70 | |
| PZ-7S | 54+50N, 53+93E | 1199.67 | |
| PZ-7D | 54+50N, 53+93E | 1199.48 | |
| MW-8 | 53+91N, 58+73E | 1189.34 | |
| PZ-8S | 53+91N, 58+73E | 1189.27 | |
| PZ-8D | 53+91N, 58+73E | 1189.30 | |
| MW-9 | 47+90N, 51+39E | 1189.06 | |
| PZ-9S | 47+90N, 51+39E | 1189.25 | |
| PZ-9D | 47+90N, 51+39E | 1189.48 | |
| MW-10 | 41+04N, 53+80E | 1180.05 | |
| PZ-10S | 41+04N, 53+80E | 1179.92 | |
| PZ-10D | 41+04N, 53+80E | 1179.41 | |
| B-1 | 72+97N, 52+92E | 1200.63 | TEMPORARY WELL |
| B-2 | 71+25N, 54+24E | 1203.03 | TEMPORARY WELL |
| B-3 | 69+42N, 54+40E | 1200.19 | TEMPORARY WELL |
| B-4 | 65+64N, 52+78E | 1192.74 | TEMPORARY WELL |
| B-5 | 64+89N, 54+78E | 1195.98 | TEMPORARY WELL |
| B-6 | 62+58N, 53+05E | 1192.46 | TEMPORARY WELL |

/95
/95

| NO. | BY | DATE | REVISIONS | | DESIGN | CHECKED |
|---|---|---|---|---|---|---|

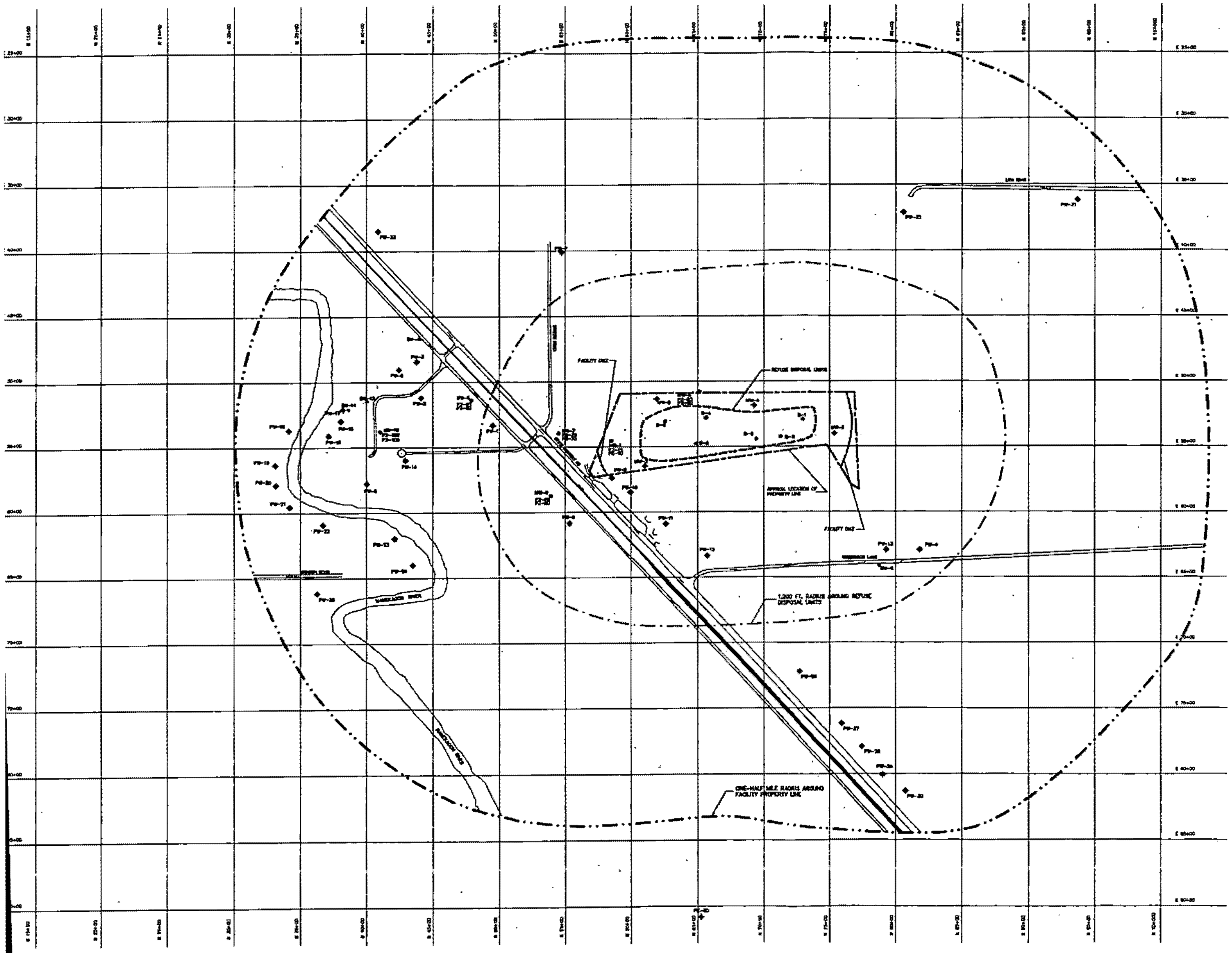
SEH
ENGINEERS ARCHITECTS PLANNERS

CITY OF HAYWARD
HAYWARD LANDFILL
ECA

# EXISTING CONDITIONS

FILE NO.
HAYW9503
DATE
08/08/95

2
8



Z

SCALE IN FEET

0 200 400 800

## LEGEND

| | |
|---|---|
| —··—··— | ONE-HALF MILE RADIUS AROUND FACILITY PROPERTY LINE |
| —·—·— | 1,200 FT. RADIUS AROUND REFUSE DISPOSAL LIMITS |
| ——— | APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO.) |
| - - - - - | FACILITY DESIGN MANAGEMENT ZONE (DMZ) |
| — — — | APPROXIMATE REFUSE DISPOSAL LIMITS (BASED ON (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO., AND ON SITE OBSERVATIONS BY SEH). |
| PW-11 ⌖ | PRIVATE WELL LOCATION AND NUMBER |

NOTES:

1. PRIVATE WELL FIELD LOCATION PERFORMED BY SEH ON AUGUST 13, 1995. LOCATIONS OF PRIVATE WELLS ARE APPROXIMATE.
2. LOCATION OF THE NAMEKAGON RIVER, LIEN ROAD AND BENSON ROAD WERE NOT SURVEYED AND ARE APPROXIMATE.

| | | | | | | |
|---|---|---|---|---|---|---|
| 8/95 | | | | | | |
| 8/95 | | | | | | |
| | NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |

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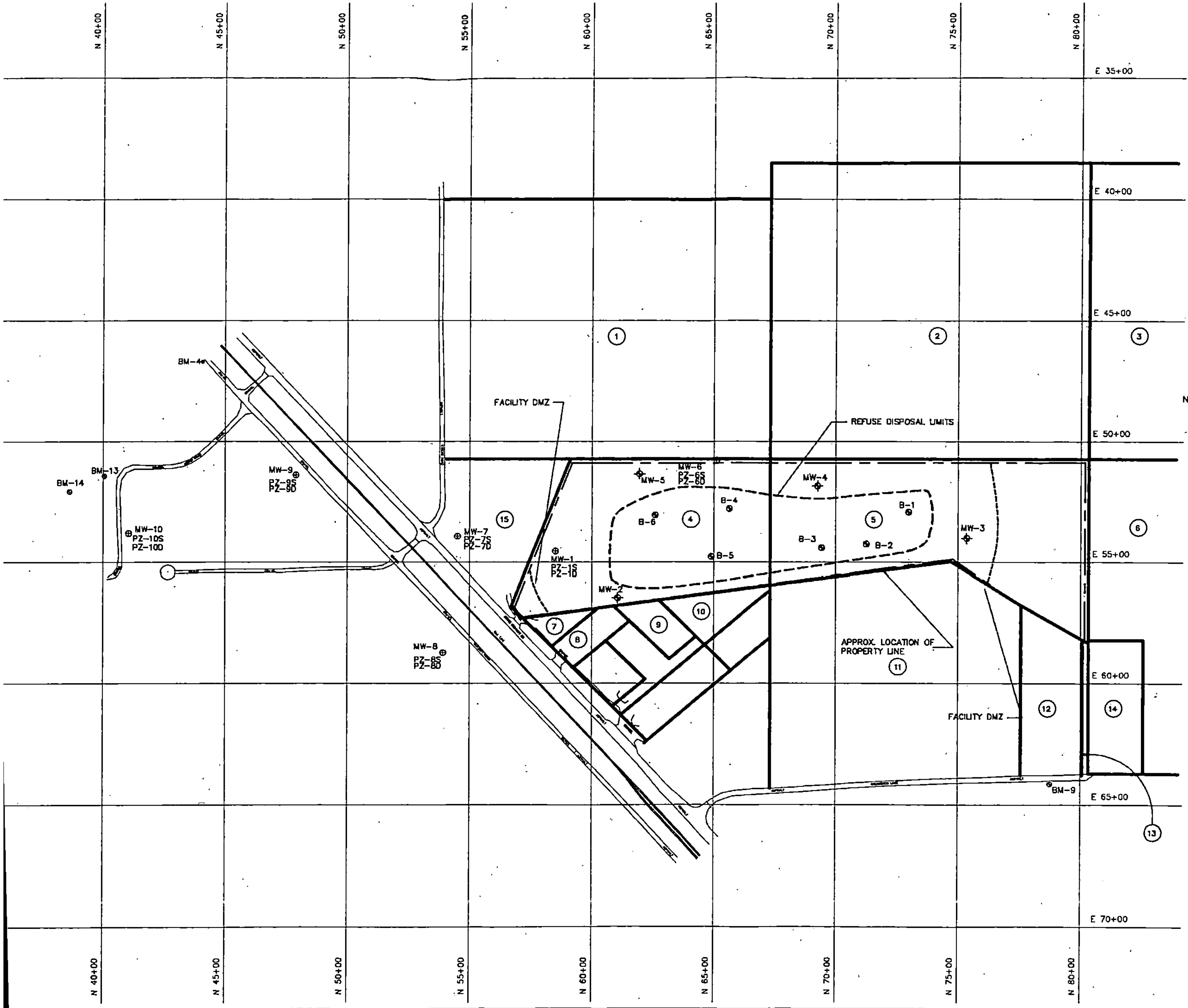
CITY OF HAYWARD
HAYWARD LANDFILL
ECA

EXISTING WATER SUPPLY
WELL LOCATIONS

FILE NO.
HAYW9503
DATE
08/08/95

3/8



Z

SCALE IN FEET

0 100 200 400

## LEGEND

| | |
|---|---|
| — - — - — | APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON 1995 CITY OF HAYWARD TAX RECORD MAP) |
| – – – – – – | FACILITY DESIGN MANAGEMENT ZONE (DMZ) |
| —— – —— | APPROXIMATE REFUSE DISPOSAL LIMITS |
| MW-5 ⊕ | MONITORING WELL LOCATION AND NUMBER |
| MW-6<br>PZ-6S ⊕<br>PZ-6D | MONITORING WELL – PIEZOMETER NEST LOCATION AND NUMBERS |
| B-6 ● | TEMPORARY WELL LOCATION AND NUMBER |
| BM-4 ● | BENCH MARK |

NOTES:
1. ADJACENT PROPERTY OWNERSHIP INFORMATION OBTAINED FROM THE CITY OF HAYWARD 1995 TAX RECORDS.
2. FACILITY DMZ COINCIDES WITH FACILITY PROPERTY LINE WHERE PROPERTY LINE IS WITHIN 300 FT. OF REFUSE LIMITS.
3. PROPERTY BOUNDARIES DEPICTED ON DRAWING NO. 4/8 WERE OBTAINED FROM CITY OF HAYWARD 1995 TAX RECORDS. FACILITY PROPERTY BOUNDARIES FROM CITY RECORDS VARY FROM THE PROPERTY BOUNDARIES USED TO GENERATE DRAWINGS NOs 2/8, 3/8, 5/8, 6/8, 7/8, AND 8/8

| PROPERTY NO. | OWNERSHIP INFORMATION |
|---|---|
| ① | ROBERT D. HOBART ETAL<br>P.O. BOX 870<br>HAYWARD, WI. |
| ② | ERNEST AND CURTISS LEIN<br>RR 8 BOX 8210<br>HAYWARD, WI. |
| ③ | DANIEL AND KATHY GARBE<br>P.O. BOX 1026<br>HAYWARD, WI. |
| ④ | CITY OF HAYWARD<br>P.O. BOX 593<br>HAYWARD, WI. |
| ⑤ | CITY OF HAYWARD<br>P.O. BOX 593<br>HAYWARD, WI. |
| ⑥ | ROBYN L CAMERON<br>RR 4 BOX 4545<br>HAYWARD, WI. |
| ⑦ | SUSAN L. BROWN<br>RR 1 BOX 224<br>GORDON, WI. |
| ⑧ | RICHARD PFISTER<br>RR 8 BOX 8226<br>HAYWARD, WI. |
| ⑨ | ALFRED VOIGHT<br>RR 10 BOX 135<br>HAYWARD, WI |
| ⑩ | ALEXANDER AND DONNA ZIELIE<br>9505 CRESENT AVENUE<br>EAU CLAIRE, WI. |
| ⑪ | WISE BROS LAND CO. INC.<br>P.O. BOX 31<br>HAYWARD, WI. |
| ⑫ | HAYWARD BUS SERVICE INC.<br>P.O. BOX 1007<br>HAYWARD, WI. |
| ⑬ | CITY OF HAYWARD<br>P.O. BOX 593<br>HAYWARD, WI. |
| ⑭ | JAMES LAKE<br>N8924 CURVE INN ROAD<br>TOMAHAWK, WI. |
| ⑮ | FRANK AND JEANNE PINC<br>RR 3 BOX 3110G<br>HAYWARD, WI |

| DATE | NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |
|---|---|---|---|---|---|---|
| 8/95 | | | | | | |
| 8/95 | | | | | | |

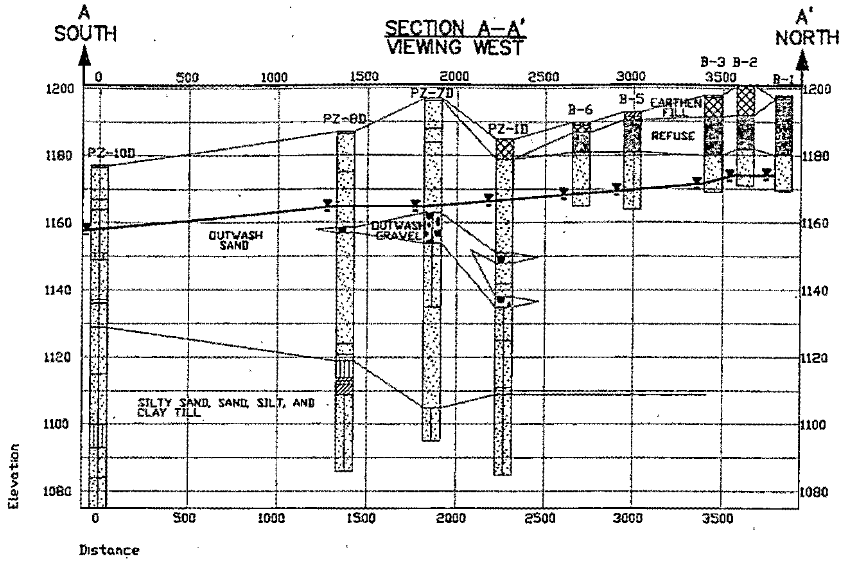
SEH
ENGINEERS ARCHITECTS PLANNERS

CITY OF HAYWARD
HAYWARD ECA LANDFILL

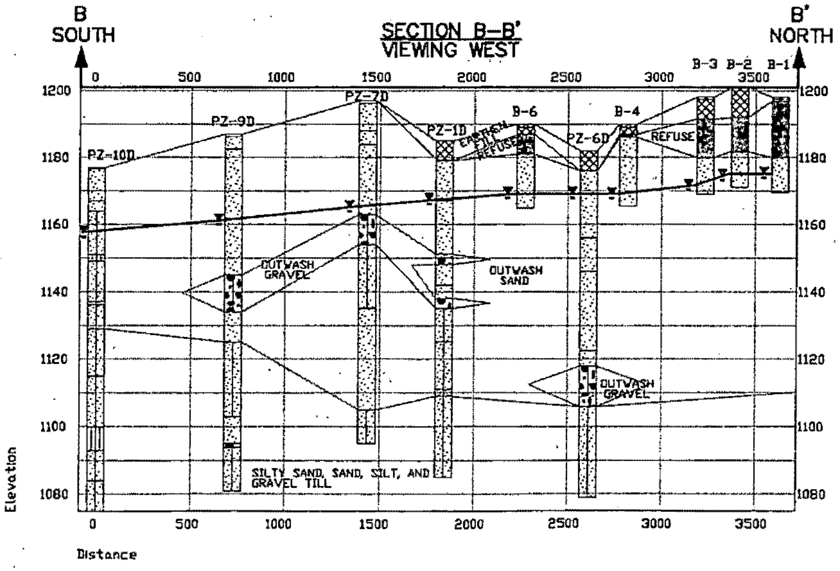
**ADJACENT PROPERTY OWNERS**

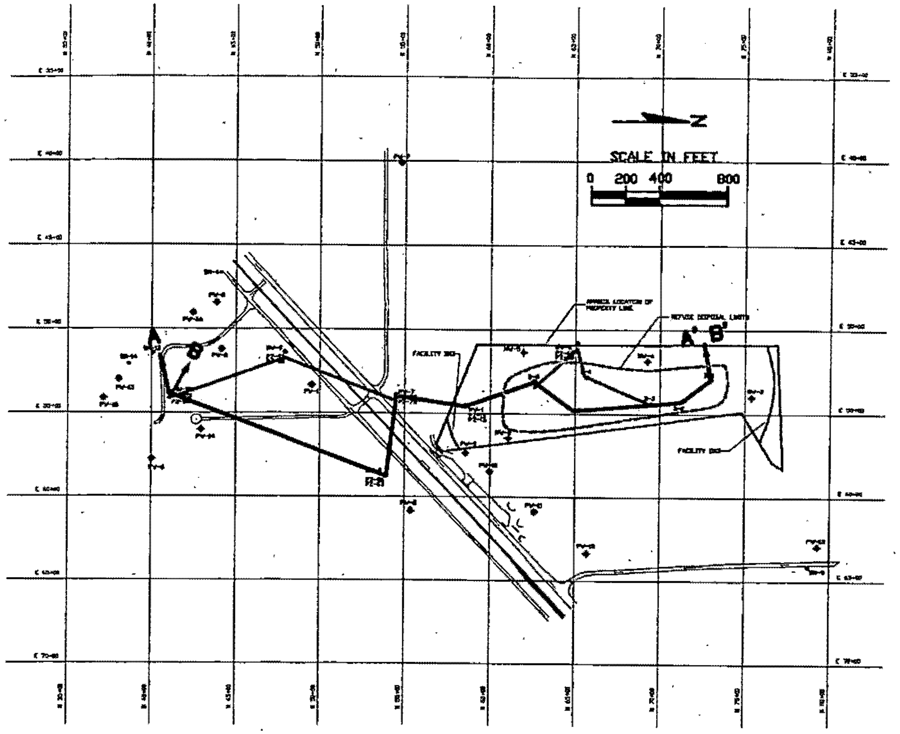
FILE NO. HAYW9503
DATE 08/08/95

4/8



VERTICAL SCALE IN FEET





## LEGEND

- ▨ EARTHEN FILL
- ▨ REFUSE
- ░ OUTWASH SAND
- ░ SILTY SAND
- ▨ OUTWASH GRAVEL
- ▼ WATER TABLE ELEVATION AS MEASURED ON 08/07/95

NOTE: 1. STRATIGRAPHIC CORRELATION BETWEEN WELLS IS INFERRED AND WILL VARY FROM ACTUAL STRATIGRAPHIC CONDITIONS.

| NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |
|---|---|---|---|---|---|

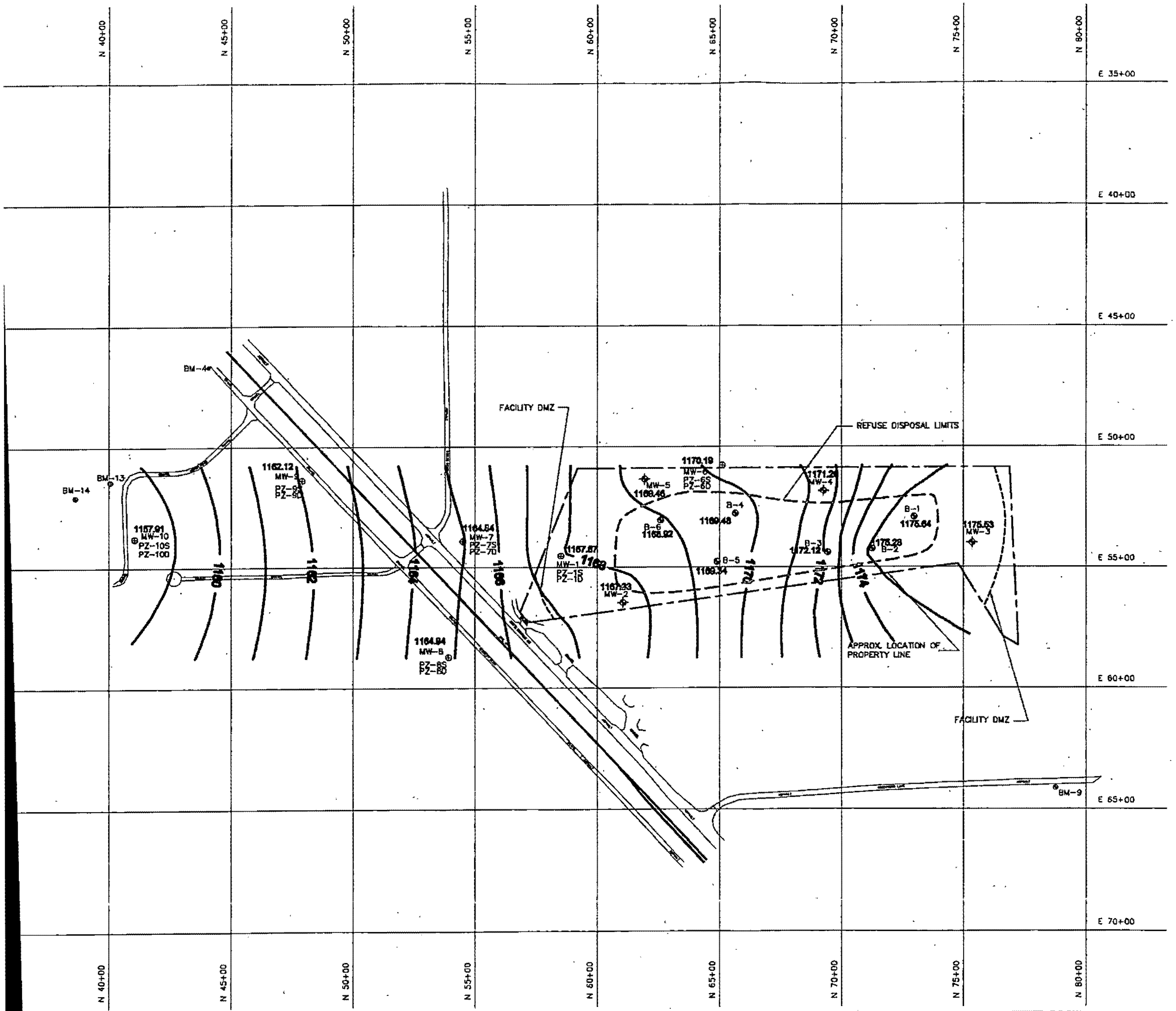
ENGINEERS ARCHITECTS PLANNERS

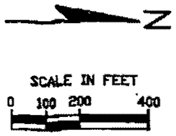
CITY OF HAYWARD
HAYWARD LANDFILL
ECA

GEOLOGIC CROSS SECTIONS

FILE NO. HAYW9503
DATE 08/08/95

5/8





## LEGEND

| | |
|---|---|
| 1160 | GROUNDWATER ELEVATIONS TAKEN 07/05/95 |
| — — — — — | APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO.) |
| - - - - - - - | FACILITY DESIGN MANAGEMENT ZONE (DMZ) |
| — — — — | APPROXIMATE REFUSE DISPOSAL LIMITS (BASED ON (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO., AND ON SITE OBSERVATIONS BY SEH). |
| MW-5 ⊕ | MONITORING WELL LOCATION AND NUMBER |
| 1170.19<br>MW-6<br>PZ-6S ⊕<br>PZ-6D | MONITORING WELL – PIEZOMETER NEST LOCATION AND NUMBERS AND ASSOCIATED WATERTABLE ELEVATION |
| B-6 ● | TEMPORARY WELL LOCATION AND NUMBER |
| BM-4 ● | BENCH MARK |

NOTES:

1. MONITORING WELLS, PRIVATE WELLS, AND BORING LOCATIONS SURVEYED BY SEH INC., ON MAY 23, 1995.
2. FACILITY DMZ COINCIDES WITH FACILITY PROPERTY LINE WHERE PROPERTY LINE IS WITHIN 300 FT. OF REFUSE DISPOSAL LIMITS.
3. GROUNDWATER CONTOURS PLOTTED USING SURFER® COMPUTER PROGRAM (KRIGING METHOD)

MONITORING WELLS, PIEZOMETERS, AND TEMPORARY WELLS

| WELL NO. | STATION | TOC ELEVATION (FEET MSL) | COMMENTS |
|---|---|---|---|
| MW-1 | 58+51N, 54+54E | 1187.91 | |
| PZ-1S | 58+51N, 54+54E | 1187.85 | |
| PZ-1D | 58+51N, 54+54E | 1187.93 | |
| MW-2 | 61+04N, 56+45E | 1199.20 | |
| MW-3 | 75+33N, 53+99E | 1200.20 | |
| MW-4 | 69+26N, 51+82E | 1188.88 | |
| MW-5 | 61+92N, 51+32E | 1181.03 | |
| MW-6 | 65+10N, 50+78E | 1185.11 | |
| PZ-6S | 65+10N, 50+78E | 1184.70 | |
| PZ-6D | 65+10N, 50+78E | 1184.65 | |
| MW-7 | 54+50N, 53+93E | 1199.70 | |
| PZ-7S | 54+50N, 53+93E | 1199.67 | |
| PZ-7D | 54+50N, 53+93E | 1199.48 | |
| MW-8 | 53+91N, 58+73E | 1189.34 | |
| PZ-8S | 53+91N, 58+73E | 1189.27 | |
| PZ-8D | 53+91N, 58+73E | 1189.30 | |
| MW-9 | 47+90N, 51+39E | 1189.06 | |
| PZ-9S | 47+90N, 51+39E | 1189.25 | |
| PZ-9D | 47+90N, 51+39E | 1189.48 | |
| MW-10 | 41+04N, 53+80E | 1180.05 | |
| PZ-10S | 41+04N, 53+80E | 1179.92 | |
| PZ-10D | 41+04N, 53+80E | 1179.41 | |
| B-1 | 72+97N, 52+92E | 1200.63 | TEMPORARY WELL |
| B-2 | 71+25N, 54+24E | 1203.03 | TEMPORARY WELL |
| B-3 | 69+42N, 54+40E | 1200.19 | TEMPORARY WELL |
| B-4 | 65+64N, 52+78E | 1192.74 | TEMPORARY WELL |
| B-5 | 64+89N, 54+78E | 1195.98 | TEMPORARY WELL |
| B-6 | 62+58N, 53+05E | 1192.46 | TEMPORARY WELL |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8/95 | | | | | | |
| 8/95 | | | | | | |
| | NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |

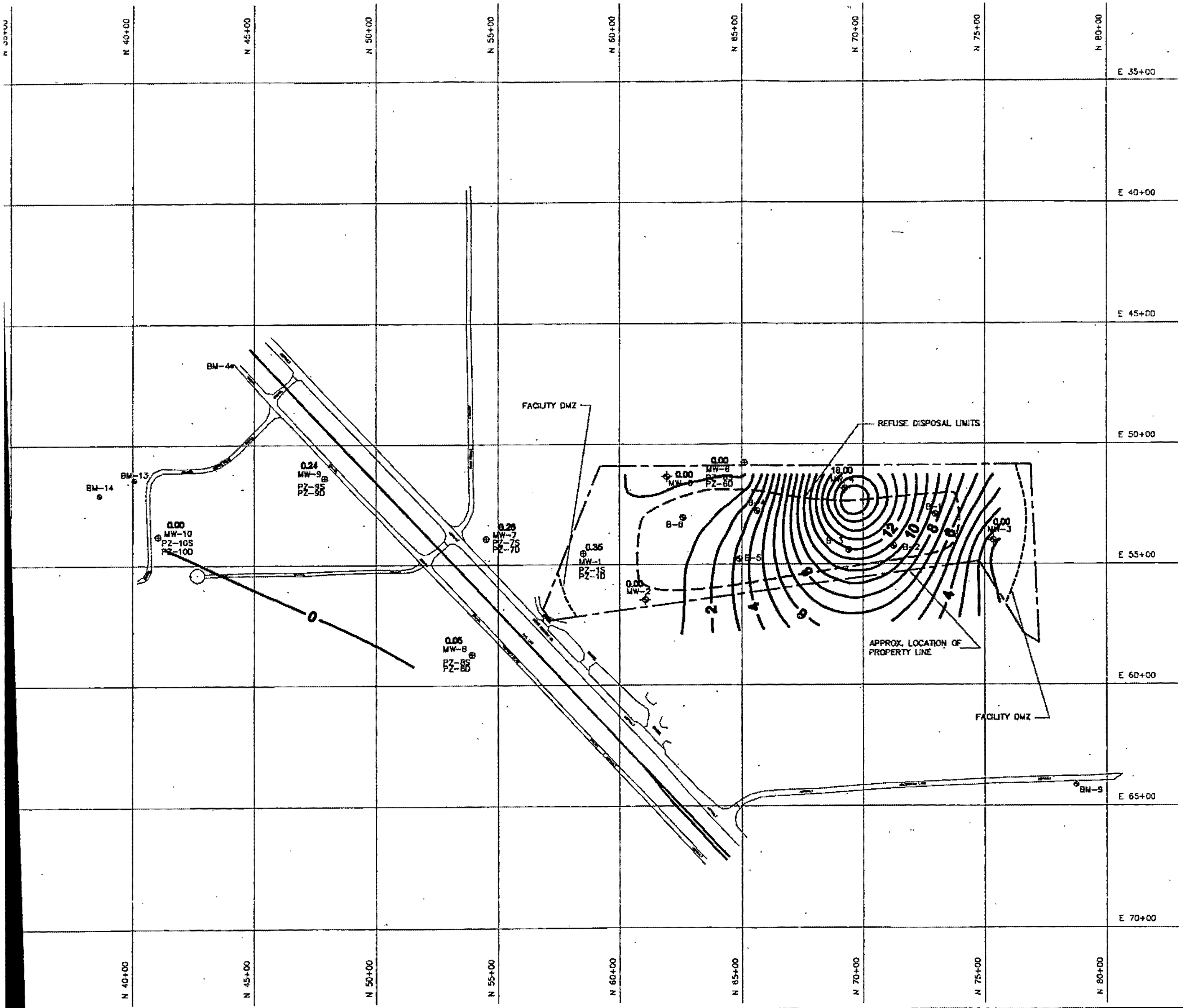
SEH
ENGINEERS ARCHITECTS PLANNERS

CITY OF HAYWARD
HAYWARD LANDFILL
ECA

# GROUNDWATER CONTOURS

FILE NO.
HAYW9503
DATE
08/08/95

6/8



## LEGEND

| | |
|---|---|
| 4 | VINYL CHLORIDE ISOCONCENTRATION CONTOUR CONTOUR INTERVAL= 1 ug/l |
| — — — | APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO.) |
| - - - - | FACILITY DESIGN MANAGEMENT ZONE (DMZ) |
| — — — — | APPROXIMATE REFUSE DISPOSAL LIMITS (BASED ON (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO., AND ON SITE OBSERVATIONS BY SEH). |
| MW-5 ⌖ | MONITORING WELL LOCATION AND NUMBER |
| 0.00 MW-6 PZ-6S PZ-6D ⊕ | MONITORING WELL - PIEZOMETER NEST LOCATION AND NUMBERS AND ASSOCIATED CONCENTRATION OF VINYL CHLORIDE (ug/l) |
| B-6 ● | TEMPORARY WELL LOCATION AND NUMBER |
| BM-4 ● | BENCH MARK |

NOTES:

1. MONITORING WELLS, PRIVATE WELLS, AND BORING LOCATIONS SURVEYED BY SEH INC., ON MAY 23, 1995.
2. FACILITY DMZ COINCIDES WITH FACILITY PROPERTY LINE WHERE PROPERTY LINE IS WITHIN 300 FT. OF REFUSE DISPOSAL LIMITS.
3. ISOCONCENTRATION LINES PLOTTED USING SURFER® COMPUTER PROGRAM (KRIGING METHOD) AND GROUNDWATER ANALYTICAL DATA COLLECTED BY SEH IN JULY 1995. HIGHEST VALUE FROM EACH WELL NEST UTILIZED IN EVALUATION.

MONITORING WELLS, PIEZOMETERS, AND TEMPORARY WELLS

| WELL NO. | STATION | TOC ELEVATION (FEET MSL) | COMMENTS |
|---|---|---|---|
| MW-1 | 58+51N, 54+54E | 1187.91 | |
| PZ-1S | 58+51N, 54+54E | 1187.85 | |
| PZ-1D | 58+51N, 54+54E | 1187.93 | |
| MW-2 | 61+04N, 56+45E | 1199.20 | |
| MW-3 | 75+33N, 53+99E | 1200.20 | |
| MW-4 | 69+26N, 51+82E | 1188.88 | |
| MW-5 | 61+92N, 51+32E | 1181.03 | |
| MW-6 | 65+10N, 50+78E | 1185.11 | |
| PZ-6S | 65+10N, 50+78E | 1184.70 | |
| PZ-6D | 65+10N, 50+78E | 1184.65 | |
| MW-7 | 54+50N, 53+93E | 1199.70 | |
| PZ-7S | 54+50N, 53+93E | 1199.67 | |
| PZ-7D | 54+50N, 53+93E | 1199.48 | |
| MW-8 | 53+91N, 58+73E | 1189.34 | |
| PZ-8S | 53+91N, 58+73E | 1189.27 | |
| PZ-8D | 53+91N, 58+73E | 1189.30 | |
| MW-9 | 47+90N, 51+39E | 1189.06 | |
| PZ-9S | 47+90N, 51+39E | 1189.25 | |
| PZ-9D | 47+90N, 51+39E | 1189.48 | |
| MW-10 | 41+04N, 53+80E | 1180.05 | |
| PZ-10S | 41+04N, 53+80E | 1179.92 | |
| PZ-10D | 41+04N, 53+80E | 1179.41 | |
| B-1 | 72+97N, 52+92E | 1200.63 | TEMPORARY WELL |
| B-2 | 71+25N, 54+24E | 1203.03 | TEMPORARY WELL |
| B-3 | 69+42N, 54+40E | 1200.19 | TEMPORARY WELL |
| B-4 | 65+64N, 52+78E | 1192.74 | TEMPORARY WELL |
| B-5 | 64+89N, 54+78E | 1195.98 | TEMPORARY WELL |
| B-6 | 62+58N, 53+05E | 1192.46 | TEMPORARY WELL |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8/95 | | | | | | |
| 8/95 | | | | | | |
| | NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |

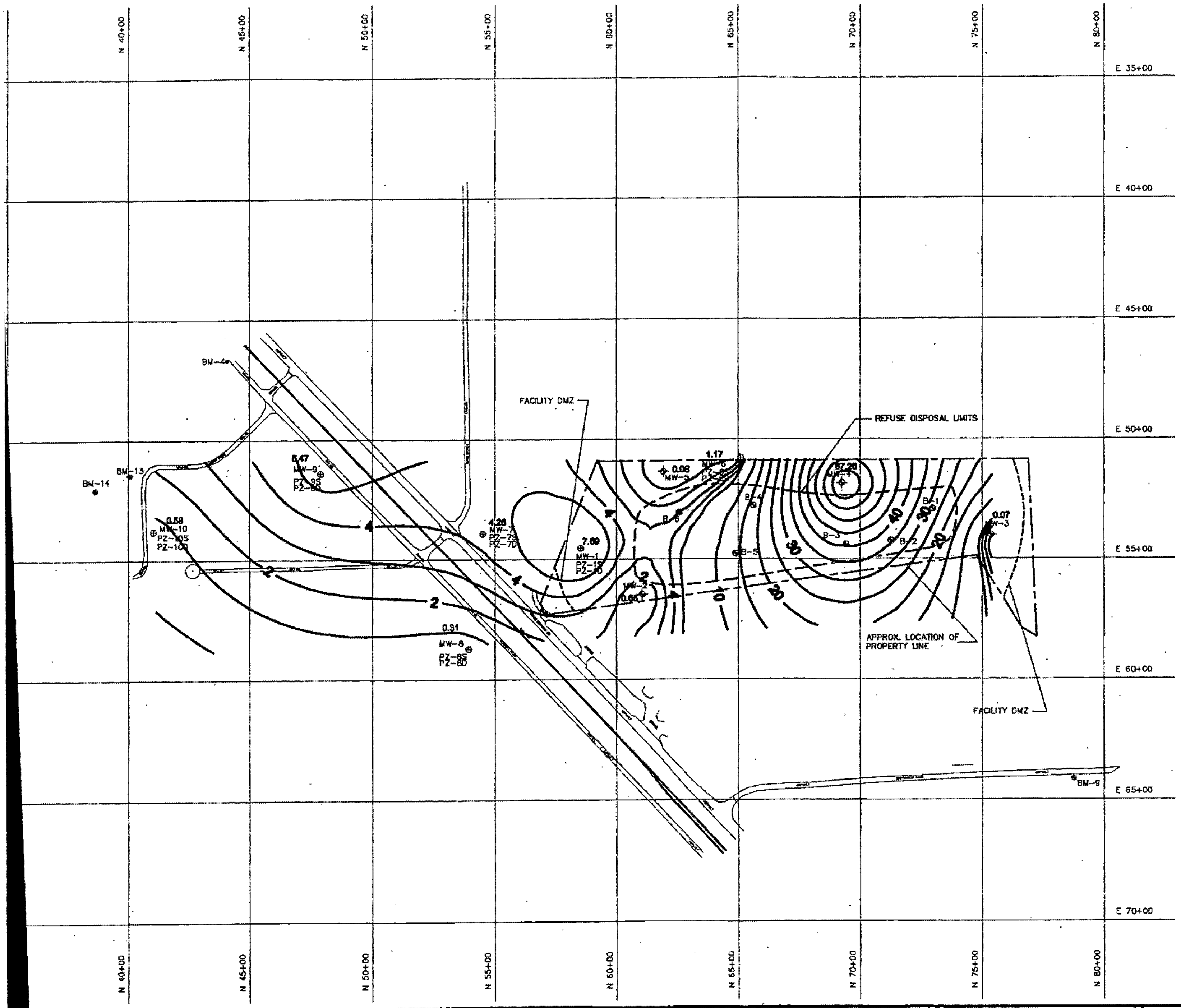
SEH
ENGINEERS ARCHITECTS PLANNERS

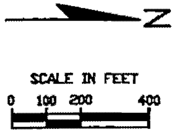
CITY OF HAYWARD
HAYWARD ECA LANDFILL
ECA

GROUNDWATER VINYL
CHLORIDE ISOCONCENTRATION MAP

FILE NO. HAYW9503
DATE 08/08/95

7/8





## LEGEND

| | |
|---|---|
| 20 | TOTAL VOC ISOCONCENTRATION CONTOUR CONTOUR INTERVAL= 5 ug/l ON NORTH SIDE OF DRAWING, 1 ug/l ON SOUTH SIDE OF DRAWING. |
| | APPROXIMATE LOCATION OF FACILITY PROPERTY LINE (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO.) |
| | FACILITY DESIGN MANAGEMENT ZONE (DMZ) |
| | APPROXIMATE REFUSE DISPOSAL LIMITS (BASED ON (BASED ON MAY 29, 1984 SITE SURVEY BY ANDERSON-RITCHIE ENGINEERING + SURVEY CO., AND ON SITE OBSERVATIONS BY SEH). |
| MW-5 ⌖ | MONITORING WELL LOCATION AND NUMBER |
| 1.17<br>MW-6<br>PZ-6S ⊕<br>PZ-6D | MONITORING WELL – PIEZOMETER NEST LOCATION AND NUMBERS AND ASSOCIATED CONCENTRATION OF TOTAL VOC (ug/l) |
| B-6 ⊗ | TEMPORARY WELL LOCATION AND NUMBER |
| BM-4 ● | BENCH MARK |

NOTES:

1. MONITORING WELLS, PRIVATE WELLS, AND BORING LOCATIONS SURVEYED BY SEH INC., ON MAY 23, 1995.
2. FACILITY DMZ COINCIDES WITH FACILITY PROPERTY LINE WHERE PROPERTY LINE IS WITHIN 300 FT. OF REFUSE DISPOSAL LIMITS.
3. ISOCONCENTRATION LINES PLOTTED USING SURFER® COMPUTER PROGRAM (KRIGING METHOD) AND GROUNDWATER ANALYTICAL DATA COLLECTED BY SEH IN JULY 1995. HIGHEST VALUE FROM EACH WELL NOT UTILIZED.

MONITORING WELLS, PIEZOMETERS, AND TEMPORARY WELLS

| WELL NO. | STATION | TOC ELEVATION (FEET MSL) | COMMENTS |
|---|---|---|---|
| MV-1 | 58+51N, 54+54E | 1187.91 | |
| PZ-1S | 58+51N, 54+54E | 1187.85 | |
| PZ-1D | 58+51N, 54+54E | 1187.93 | |
| MV-2 | 61+04N, 56+45E | 1199.20 | |
| MV-3 | 75+33N, 53+99E | 1200.20 | |
| MV-4 | 69+26N, 51+82E | 1188.88 | |
| MV-5 | 61+92N, 51+32E | 1181.03 | |
| MV-6 | 65+10N, 50+78E | 1185.11 | |
| PZ-6S | 65+10N, 50+78E | 1184.70 | |
| PZ-6D | 65+10N, 50+78E | 1184.65 | |
| MV-7 | 54+50N, 53+93E | 1199.70 | |
| PZ-7S | 54+50N, 53+93E | 1199.67 | |
| PZ-7D | 54+50N, 53+93E | 1199.48 | |
| MV-8 | 53+91N, 58+73E | 1189.34 | |
| PZ-8S | 53+91N, 58+73E | 1189.27 | |
| PZ-8D | 53+91N, 58+73E | 1189.30 | |
| MV-9 | 47+90N, 51+39E | 1189.06 | |
| PZ-9S | 47+90N, 51+39E | 1189.25 | |
| PZ-9D | 47+90N, 51+39E | 1189.48 | |
| MV-10 | 41+04N, 53+80E | 1180.05 | |
| PZ-10S | 41+04N, 53+80E | 1179.92 | |
| PZ-10D | 41+04N, 53+80E | 1179.41 | |
| B-1 | 72+97N, 52+92E | 1200.63 | TEMPORARY WELL |
| B-2 | 71+25N, 54+24E | 1203.03 | TEMPORARY WELL |
| B-3 | 69+42N, 54+40E | 1200.19 | TEMPORARY WELL |
| B-4 | 65+64N, 52+78E | 1192.74 | TEMPORARY WELL |
| B-5 | 64+89N, 54+78E | 1195.98 | TEMPORARY WELL |
| B-6 | 62+58N, 53+05E | 1192.46 | TEMPORARY WELL |

| NO. | BY | DATE | REVISIONS | DESIGN | CHECKED |
|---|---|---|---|---|---|
| /95 | | | | | |
| /95 | | | | | |

SEH
ENGINEERS ARCHITECTS PLANNERS

CITY OF HAYWARD
HAYWARD LANDFILL
ECA

GROUNDWATER TOTAL VOC
ISOCONCENTRATION MAP

FILE NO.
HAYW9503
DATE
08/08/95

8/8

NO. 13658

## NORTHERN LAKE SERVICE, INC.

*Analytical Laboratory and Environmental Services*

400 North Lake Avenue • Crandon, WI 54520
Tel: (715) 478-2777 • Fax: (715) 478-3060

## SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

*Wisconsin Lab Cert. No. 721026460*

2 of 3

RETURN THIS FORM WITH SAMPLES.

CLIENT SEH

PROJECT TITLE Hayward Landfill Monitoring

ADDRESS 421 Frenette Drive

PROJECT NO. HAYWA 9503

P.O. NO.

CITY Chippewa Falls STATE WI ZIP 54729

CONTACT John Guhl

PHONE (715) 720-6225

| | ITEM NO. | NLS LAB. NO. | SAMPLE ID | COLLECTION DATE | COLLECTION TIME | SAMPLE TYPE | GRAB/ COMP. | CONTAINER/PRESERVATIVE P-NP | P-S | P-N | G-H | | COLLECTION REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 1. | 83740 | PZ-7D | 7-5-95 | 1230 | GW | GRAB | 1F | 1F | 1F | 2 | | 10950 |
| 14 | 2. | 83741 | MW-8 | 7-5-95 | 1125 | " | " | │ | │ | │ | │ | | 10951 |
| 15 | 3. | 83742 | PZ-8S | 7-5-95 | 1125 | " | " | │ | │ | │ | │ | | 10952 |
| 16 | 4. | 83742 | PZ-8D | 7-5-95 | 1125 | " | " | │ | │ | │ | │ | | 10953 |
| 17 | 5. | [illegible] | MW-9 | 7-5-95 | 1030 | " | " | │ | │ | │ | │ | | 10954 |
| 18 | 6. | [illegible] | PZ-9S | 7-5-95 | 1047 | " | " | │ | │ | │ | │ | | 10955 |
| 19 | 7. | 83746 | PZ-9D | 7-5-95 | 1030 | " | " | │ | │ | │ | │ | | 10956 |
| 20 | 8. | 83747 | MW-10 | 7-5-95 | 0915 | " | " | │ | │ | │ | │ | | 10957 |
| 21 | 9. | 83748 | PZ-10S | 7-5-95 | 0925 | " | " | │ | │ | │ | │ | | 10958 |
| 22 | 10. | 83749 | PZ-10D | 7-5-95 | 0925 | " | " | ↓ | ↓ | ↓ | ↓ | | 10959 |
| 23 | 11. | 83750 | DUPE | 7-5-95 | 0800 | " | " | | | | 2 | | 10960 |
| 24 | 12. | 83751 | FIELD | 7-6-95 | 0745 | tap | " | | | | 2 | | 10961 |

SAMPLE TYPE:

SW = surface water
WW = wastewater
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
PROD = product
SOIL = soil
SED = sediment

describe others

CONTAINER

P = plastic
G = glass
V = glass vial
B = plastic bag

describe others

PRESERVATIVES & PREPARATION

NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
**F = field filtered**

COLLECTED BY (signatures) Chad Underwood James

CUSTODY SEAL NO. (IF ANY) DATE/TIME

RELINQUISHED BY (signature) RECEIVED BY (signature) DATE/TIME

RELINQUISHED BY (signature) RECEIVED BY (signature) DATE/TIME

DISPATCHED BY (signature) James

METHOD OF TRANSPORT UPS - Next Day Air

DATE/TIME 7/6/95 15:00

RECEIVED AT NLS BY (signature)

DATE/TIME 7-07-95 9:30

CONDITION

TEMP. [illegible]

SEAL INTACT? ☐ YES ☐ NO

SEAL #

REMARKS & OTHER INFORMATION

**IMPORTANT:** 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

DUPLICATE COPY

**NO.** 13659

## NORTHERN LAKE SERVICE, INC.

*Analytical Laboratory and Environmental Services*

400 North Lake Avenue • Crandon, WI 54520
Tel: (715) 478-2777 • Fax: (715) 478-3060

## SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

*Wisconsin Lab Cert. No. 721026460*

3 of 3

RETURN THIS FORM WITH SAMPLES.

CLIENT SEH

PROJECT TITLE Hayward Landfill Monitoring

ADDRESS 421 Frenette Drive

PROJECT NO. HAYWA9503

P.O. NO.

CITY Chippewa Falls STATE WI ZIP 54729

CONTACT John Guhl

PHONE (715) 720-6225

| ITEM NO. | NLS LAB. NO. | SAMPLE ID | COLLECTION | | SAMPLE TYPE | GRAB/ COMP. | CONTAINER/PRESERVATIVE | | | | | COLLECTION REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DATE | TIME | | | G-H | | | | | |
| '5 1. | [illegible] | TRIP | 6-28-95 | 0930 | | GRAB | 1 | | | | | 10962 |
| 2. | | | | F F F | | | | | | | | |
| 3. | | | | | | | | | | | | |
| 4. | | | | | | | | | | | | |
| 5. | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | |
| 11. | | | | | | | | | | | | |
| 12. | | | | | | | | | | | | |

SAMPLE TYPE:
SW = surface water
WW = wastewater
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
PROD = product
SOIL = soil
SED = sediment
describe others

CONTAINER
P = plastic
G = glass
V = glass vial
B = plastic bag
describe others

PRESERVATIVES & PREPARATION
NP = nothing added
S = sulfuric acid
N = nitric acid
Z = zinc acetate
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid
**F = field filtered**

COLLECTED BY (signatures) Chad Underwood James A Thornton
CUSTODY SEAL NO. (IF ANY)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

RELINQUISHED BY (signature)
RECEIVED BY (signature)
DATE/TIME

DISPATCHED BY (signature) James A Thornton
METHOD OF TRANSPORT UPS - Next Day Air
DATE/TIME 7/6/95 15:00

RECEIVED AT NLS BY (signature) Cottrell
DATE/TIME 7-07-95 9:30
CONDITION
TEMP. 6°

SEAL INTACT? ☒ YES ☐ NO
SEAL #
REMARKS & OTHER INFORMATION

**IMPORTANT:** 1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE SHIPPER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.

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