



PERIODIC REVIEW

**Centralia Landfill
Facility Site ID#: 1154**

**1411 South Tower Road
Centralia, Washington 98531**

Southwest Region Office

TOXICS CLEANUP PROGRAM

November 2010

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1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup site conditions and monitoring data at the Centralia Landfill. The Washington State Department of Ecology (Ecology) is the lead agency for cleanup of Centralia Landfill. In August 1990, the Centralia Landfill was placed on the Federal National Priorities List (NPL) and Ecology was designated the lead agency for the Site cleanup. Therefore, cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC)

The purpose of this periodic review is to determine whether the cleanup remedy at the City of Centralia's Landfill Superfund Site (Site) continues to be protective of human health and the environment.

Cleanup activities at this Site were completed under Cleanup Action Plan Consent Decree No. C91-5100 (T) WD between Ecology, Lewis County, the City of Chehalis, the City of Centralia, the City of Morton, the City of Mossyrock, the Town of Pe Ell, and the City of Vader, as executed in 1991. Additional filings were made under this Consent Decree to include a Remedial Investigation/Feasibility Study (RI/FS) and Cleanup Action Plan (CAP). The cleanup actions were necessary because of arsenic and manganese concentrations in ground water. In addition, the remedy involved the containment of hazardous materials typically found in municipal solid waste landfills. Contaminants remaining at the Site exceed MTCA cleanup levels. The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for ground water are established under WAC 173-340-720.

WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- (a) Whenever the department conducts a cleanup action
- (b) Whenever the department approves a cleanup action under an order, agreed order or consent decree
- (c) Or, as resources permit, whenever the department issues a no further action opinion;
- (d) and one of the following conditions exists:
 - 1. Institutional controls or financial assurance are required as part of the cleanup
 - 2. Where the cleanup level is based on a practical quantitation limit
 - 3. Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

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- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site;
 - (b) New scientific information for individual hazardous substances of mixtures present at the site;
 - (c) New applicable state and federal laws for hazardous substances present at the Site;
 - (d) Current and projected site use;
 - (e) Availability and practicability of higher preference technologies; and
 - (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the site register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site Operational History

The Centralia Landfill is a closed municipal solid waste landfill located in the City of Centralia, Lewis County, Washington, in Section 17, Township 14N, and Range 2W of the Willamette Meridian. A vicinity map is available as Appendix 6.1. The unlined Landfill operated from 1958 until April 1, 1994. Originally, the Landfill encompassed the adjacent property that is currently owned by the Centralia Christian School (formally owned by the Centralia Holding Corporation (CHC)) and Harold and Mary Vassar (Vassar), as well as the City of Centralia. Because refuse has been placed on all three parcels of land, this area constitutes the Site.

The City of Centralia began operating the unlined Landfill in 1958. The Closed Northend Landfill portion of the Site was filled from 1958 to 1965 using the "trench fill" method. With this method, trenches were excavated an estimated 40 feet wide by 300 feet long by 7 feet below ground surface (bgs). Waste was placed in the trenches and covered with 2 to 3 feet of soil. After completion of filling in the Closed Northend area, the trench fill method continued in the northeast, southeast, and southwest areas of the Final Cover Area until 1978 when the operation was changed to an "area fill" method. With this method, waste was placed in lifts 3 to 8 feet thick above the ground surface, compacted, and covered with daily or intermediate cover soil 0.5 to 1 foot thick. The area fill method continued over all of the Final Cover Area until the Site stopped accepting waste on April 1, 1994. A total of about 55 acres of the 87-acre site have received solid waste. The Final Cover Area encompasses about 46 acres and the Closed Northend area consists of about 12 acres. A site plan is available as Appendix 6.2.

The Closed Northend Landfill refers to the northernmost fill area of the Site and is a separate fill area from the Final Cover Area. Filling in the Closed Northend Landfill area was completed prior to promulgation of solid waste regulations by Ecology in 1972 (Chapter 173-301 WAC). Lewis County Environmental Services determined in 1987 that this area was closed in compliance with WAC 173-301-611 for abandoned disposal sites.

When the Landfill stopped accepting waste in 1994, it received final closure with a permanent cover system.

To accommodate waste disposal after closure of the Landfill, the Lewis County Central Transfer Station facility was constructed on the Closed Northend Landfill and began operation in 1994. In addition to the transfer station, the facility includes an administrative office building and a moderate risk waste facility (Hazo-Hut). Administrative Building No.1 and the Hazo-Hut were completed in 1996 and 1997, respectively. During the operational history of the Site, two other structures were built on or adjacent to the Closed Northend Landfill. In 1977, the City of Centralia sold 5 acres of Landfill property to United Graphics, Inc. On this property, a building was constructed immediately north of the waste boundary of the Closed Northend Landfill to house a check printing facility that operated until its closure in 1997. The Centralia Christian School purchased the property in March 1999 and opened a school. In about 1980, the City sold

1-2/3 acres of the Closed Northend Landfill property to Harold and Mary Vassar. The Vassars constructed a metal-framed building on the east side of the property and began operating a petroleum equipment servicing and underground storage tank removal company.

2.2 Regulatory History

Several regulatory actions led to the negotiation of a consent decree with Ecology requiring completion of a RI/FS and a CAP for the Centralia Landfill. These actions included:

- **Preliminary Assessment.** A potential hazardous waste site preliminary assessment (PA) was conducted in October 1985 by Ecology in conjunction with the U.S. Environmental Protection Agency (EPA) to make an initial evaluation of the potential risk posed by the Site and to recommend possible additional actions.
- **Site Inspection.** EPA conducted a site inspection (SI) in 1986 because the PA screening indicated additional information was required to accurately profile the impact from landfill-derived contaminants on adjacent surface water and ground water.
- **Preliminary Health and Resource Assessment.** The U.S. Public Health Service Agency for Toxic Substances and Disease Registry (ATSDR) visited the Landfill on March 16, 1989, and issued a preliminary health assessment in April 1990.
- **National Priorities List.** On the basis of the PA and SI, the Centralia Landfill was scored in accordance with the federal Hazard Ranking System (HRS) and was determined to be a hazardous waste site resulting in the placement of the Site on the federal National Priorities List (NPL) and the Washington State Hazardous Sites List (HSL) in August 1990. At this time, Ecology was designated the lead agency for Site cleanup.

After the Centralia Landfill was listed on the NPL and HSL, Ecology, the Centralia Landfill Closure Group (CLCG), Vassar, and CHC entered into two consent decrees for the completion of interim actions and an RI/FS. The CLCG was formed under an interlocal agreement to oversee the remediation of the Site and is composed of the following jurisdictions: Lewis County, the City of Centralia, the City of Chehalis, the City of Morton, the City of Mossyrock, the City of Vader, and the Town of Pe Ell. In 1991, the CLCG, Vassar, and CHC entered into a Consent Decree (C91-5100) with Ecology to implement an interim action (hereafter termed the First Interim Action), which involved installing a temporary geomembrane cover and utilizing existing low-permeability soil cover over portions of the landfill that had achieved final grade, installing a landfill gas collection system and temporary exhaust flare facility, installing a temporary leachate seep collection system associated with the temporary cover, upgrading surface water and erosion-control facilities, and constructing a fence around most of the Landfill property. In addition, a comprehensive leachate study was developed and conducted in 1992 and 1993 pursuant to the First Interim Action. The purpose of this study was to identify and evaluate near- and long-term leachate treatment and disposal options.

In March 1993, the CLCG, Vassar, and CHC entered into the RI/FS Consent Decree with Ecology. The RI/FS Consent Decree specifies the process whereby the CLCG is to conduct the RI/FS and Ecology is to prepare a CAP for the Centralia Landfill. Ecology and the CLCG mutually agreed to delay work on the RI/FS to focus on completing the Landfill final cover system.

In 1994 the Landfill stopped accepting waste, and Ecology, the CLCG, Vassar, and CHC amended the Interim Action Consent Decree to include the implementation of a permanent landfill cover system over the Final Cover Area, as an interim cleanup action at the Landfill. The final cover system was designed and construction completed by the end of 1995. The Landfill final cover system consists of a low-permeability composite cap placed over the refuse and associated engineering controls necessary to protect its integrity. These controls address:

- Surface water run-on/runoff and erosion
- Landfill gas collection and treatment
- Access restrictions

Remedial Investigation field investigations began in May 1996 and continued through June 1997. The field investigations included the installation of seven new ground water monitoring wells, and sampling and analysis of ground water, surface water, and sediment at the Site. A domestic well use survey was performed to determine the number and location of domestic supply wells within a one-mile radius of the Landfill. Five domestic wells located downgradient or cross gradient from the Landfill were sampled. The quality of ground water from these wells did not appear to be impacted by Centralia Landfill. However, elevated levels of inorganic water quality parameters and metals were present in surface water and ground water at the Site. Quarterly ground water, surface water, and monthly landfill gas monitoring continued at the Site until 2010 as a part of long term landfill monitoring.

2.3 Landfill Closure

The final landfill cover was placed in 1994 as an Interim Action. The final landfill cover consisted of a composite geomembrane and low-permeability soil barrier layer, a drainage layer, and a vegetative soil layer. The final cover system was designed to eliminate infiltration of precipitation into refuse at the Site, and direct clean surface water runoff into a wetland enhancement and mitigation area south of the Landfill. In addition to the final cover system, a permanent landfill gas collection system was installed beneath the final cover, and a permanent landfill gas flare system was installed adjacent to the Landfill entrance facilities for gas treatment. Perimeter fencing was completed around the Landfill to enclose all of the Final Cover Area and much of the Closed Northend Landfill. The Landfill was closed according to the requirements of the Washington State Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC). In addition, closure of the Landfill was an interim remedial action under MTCA.

The final remedial action was selected in 1999 as part of the cleanup action plan prescribed in the Consent Decree. The selected action determined that the closed Landfill would continue to

be managed as required by the Washington State Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC) and the Ecology approved O&M manual. Post-closure activities include continued operation and maintenance (O&M) of the landfill gas control system, maintenance of the final cover and surface water control systems, and monitoring of ground water and surface water. In addition, a wetlands mitigation plan would continue to be implemented. The selected action also provided for institutional controls and compliance monitoring. Institutional controls included establishment of Ecology-approved restrictive deed covenants to protect the final cover system and associated engineering controls. Monitoring would include the preparation and implementation of an Ecology-approved compliance monitoring plan that meets MTCA requirements and includes supplemental background ground water monitoring.

2.4 Cleanup Levels

Cleanup levels for surface water and ground water were established using MTCA Method B (WAC 173-340-705) which references ARARs based on applicable state and federal laws in addition to providing methods for calculating cleanup levels on the basis of toxicity or carcinogenic risk.

2.4.1 Surface Water Cleanup Levels

A surface water cleanup level for arsenic of 0.27 parts per billion was calculated based on background concentrations. However, 0.27 ppb is less than the practical quantitation limit (PQL). The PQL is the lowest concentration that can be reliably measured during routine laboratory operating conditions, using Ecology approved methods. In these cases when the cleanup level is less than the PQL, the cleanup level may be considered to be attained if the parameter is undetected at the PQL. The current PQL for arsenic is 0.5 ppb, and is defined as the compliance level for arsenic in surface water. Iron and manganese are other contaminants of concern for surface water at the Site. Since there is no surface water ARARs for iron or manganese, surface water cleanup levels are not needed for these parameters. A table of cleanup levels established in the CAP for the Site is available in Appendix 6.3.

2.4.2 Surface Water Point of Compliance

MTCA requires that the point of compliance for surface water be the point at which hazardous substances are released to surface waters of the state (WAC 173-340-730 (6)). For the Centralia Landfill, the point of compliance for surface water is monitoring station SW-14, which is located in Weyerhaeuser Ditch at the southwest corner of the Site. This location is at a point just before flows in Weyerhaeuser Ditch pass the Site property boundary and discharge into Salzer Creek.

2.4.3 Ground Water Cleanup Levels and Point of Compliance

Under WAC 173-340-720(1)(a), cleanup levels for ground water are established on the basis of the highest beneficial use of the affected ground water and the reasonable maximum exposure expected to occur under both current and potential future Site use conditions. The highest beneficial use of ground water from both the Upper Unit and the Lower Unit is for drinking

water. Therefore, cleanup levels are established based on exposure to hazardous substances via ingestion of drinking water. In addition, contaminant concentrations in the Upper Unit must also protect nearby surface water because Upper Unit ground water discharges to Weyerhaeuser Ditch and Salzer Creek. Cleanup levels for contaminants in the Upper Unit are established using MTCA Method B for ground water and surface water (WAC 173-340-720(3) and WAC 173-340-730(3)). Cleanup levels for contaminants in the Lower Unit are established using MTCA Method B for ground water (WAC 173-340-720(3)).

2.4.3.1 Upper Unit Cleanup Levels

Since this unit discharges into surface water near the Site, surface water and ground water ARARs were used to establish cleanup levels. Surface water ARARs were more stringent than ground water ARARs for arsenic and were used to establish the cleanup level for arsenic. As discussed above, a compliance level of 0.5 ppb is used for arsenic. Ground water ARARs are the most stringent ARARs for the other contaminants. Cleanup levels for conductivity, chloride, manganese, and iron are established based on federal and state secondary maximum contaminant levels (MCLs) for drinking water, which are the most stringent ground water ARARs for these parameters. A list of cleanup levels established in the CAP for the Site is available as Appendix 6.3.

2.4.3.2 Lower Unit Cleanup Levels

Since this unit does not discharge to surface water near the Site, only ground water ARARs were used to establish cleanup levels. Cleanup levels for manganese and iron are established based on federal and state secondary MCLs for drinking water and cleanup level for Arsenic is based on background concentration for the State of Washington. A table of cleanup levels established in the CAP for the Site is available in Appendix 6.3.

2.4.4 Ground Water Point of Compliance

The point of compliance for ground water cleanup at the Centralia Landfill is the existing property boundary.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

3.1.1 Surface water

The Cleanup Action Plan (CAP) set a compliance level of 0.5 µg/l for soluble Arsenic with a point of compliance at monitoring station SW-14. SW-14 is located at a point before surface water flows into the Weyerhaeuser Ditch. The surface water results for the past 12 months were reviewed for the soluble Arsenic data. This review showed soluble Arsenic was measured to be

non-detect with a Method Reporting Limit (MRL) of 1.0 µg/l which is above the compliance level of 0.5 µg/l specified in the CAP.

In addition to soluble Arsenic, the surface water from SW-14 was tested for Total Alkalinity (as CaCO₃), Total Organic Carbon, Chemical Oxygen Demand, Chloride, Hardness, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Dissolved Solids, Sulfate, pH, Temperature, Conductivity, and Dissolved Oxygen. The surface water was also tested for total and dissolved Arsenic, Calcium, Iron, Mercury, Potassium, Magnesium, Manganese, Sodium, and Zinc. The comparison of this data (1996-2009) with the surface water data collected during the remedial investigation showed there is no release of leachate from the landfill into the surface water and as a result capping of the landfill has been an effective remedy.

The testing frequency for the surface water station SW-14 will be reduced to semiannually from quarterly whenever there is a flow in the Weyerhaeuser Ditch. In order to determine compliance with the compliance level for soluble Arsenic, it will be required the testing of soluble Arsenic to be conducted with a MRL limit of 0.5 µg/l equivalent to compliance level as stated in the CAP.

3.1.2 Soil and direct contact

Based upon the site visit conducted on November 17, 2009, the landfill cover appears in excellent condition. Site personnel regularly perform well-head maintenance, vegetation control on the cap surface, fence maintenance and Site security control.

The landfill cap continues to eliminate direct exposure pathways (ingestion, contact) to contaminated soils. No repair, maintenance or contingency actions have been required. A photo log is available as Appendix 6.5.

Three Environmental Covenants for the Site were recorded and are in place. These Environmental Covenants prohibit activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenants. The Covenants also requires fencing to restrict public access to the Site and restricts ground water for any use other than compliance monitoring. This Environmental Covenants serves to assure the long term property use and integrity of the property surface. The recorded copies of Environmental Covenants are in Appendix 6.4.

3.1.3 Compliance with Ground Water Cleanup Levels in the Shallow Upper Unit

The groundwater data were evaluated from 1996 to 2009. There are 11 shallow and six deep groundwater monitoring wells in the monitoring network. Appendix 6.2 shows the locations of groundwater monitoring wells, groundwater flow direction in the shallow and deep aquifers and the groundwater monitoring results from 1996 to 2009. The parameters tested in groundwater were Total Dissolved Alkalinity, Ammonia Nitrogen, Total Dissolved Arsenic, Total Dissolved Calcium, Total Dissolved Chloride, Chemical Oxygen Demand, Conductivity, Hardness, Dissolved Iron, Dissolved Magnesium, Dissolved Manganese, Dissolved Mercury, Nitrate +

Nitrite Nitrogen, pH, Dissolved Potassium, Dissolved Sodium, Dissolved Sulfate, Total Dissolved Solids, Total Organic Carbon and Total Dissolved Zinc.

Below is a discussion of each individual contaminant of concern specified in the CAP.

3.1.3.1 Arsenic

The CAP set a compliance level of 0.5 µg/l for soluble Arsenic. The soluble Arsenic compliance level is based on protection of surface water.

In general, the up gradient wells were measured at MRL of 1 µg/l. There are eight downgradient wells. None of these wells are in compliance with the compliance level of 0.5 µg/l for soluble Arsenic. Five of these wells are in compliance with the drinking water standard of 10 µg/l. One cross gradient well, is not in compliance with the compliance level of 0.5 µg/l for soluble Arsenic and but is in compliance with drinking water standard of 10 µg/l.

The soluble Arsenic monitoring will continue at the site. In order to determine compliance with the compliance level for soluble Arsenic, it will be required the testing of soluble Arsenic to be conducted with a MRL limit of 0.5 µg/l equivalent to compliance level as stated in the CAP.

3.1.3.2 Chloride

The CAP set a cleanup level of 250 mg/l for soluble Chloride.

The only well that has in general exceeded the Chloride cleanup level is MW-2S which is a down gradient well. But the concentration has stayed steady within a range of 200 - 400 mg/l. All the other down gradient, up gradient and cross gradient wells have met the Chloride cleanup level.

3.1.3.3 Iron

The CAP set a cleanup level of 300 µg/l for soluble Iron. Only three of eight downgradient monitoring wells are meeting the cleanup level for Iron. The up-gradient and cross gradient wells are not meeting the cleanup level.

3.1.3.4 Manganese

The CAP set a cleanup level of 50 µg/l for soluble Manganese. All the up gradient and downgradient and cross gradient wells are exceeding the soluble Manganese cleanup level.

3.1.3.5 Conductivity

The CAP set a cleanup level of 700 µmhos/cm for conductivity. The up gradient wells are in compliance with the conductivity cleanup level. The cross gradient well has not been in compliance with the conductivity cleanup level. As late as 2009, a conductivity of 1,000 µmhos/cm was measured in the cross gradient well. The down gradient wells at the point of compliance, the property boundary line, have been in compliance with the conductivity cleanup level. Except for one well, which has shown non-compliance during 2004-2005, but has been in compliance since 2006.

3.1.4 Compliance with Ground Water Cleanup Levels in the Lower Unit

3.1.4.1 Arsenic

The CAP set a cleanup level of 5 µg/l for soluble Arsenic. Out of two up gradient wells, one is in compliance and one is out of compliance with the soluble Arsenic cleanup level. The non-compliant well is in compliance with the drinking water standard of 10 µg/l since 2001. The cross gradient well has been in compliance with the cleanup level consistently since 1996. The three downgradient wells have been in compliance with the cleanup level.

3.1.4.2 Iron

The CAP set a cleanup level of 300 µg/l for soluble Iron. The two up-gradient wells have not met the cleanup level. The cross gradient well has been in compliance with the cleanup level consistently since 1996. The two of the three downgradient wells have not been in compliance with the cleanup level. The well located in the property boundary line, the point of compliance, has been in compliance with the cleanup level.

3.1.4.3 Manganese

The CAP set a cleanup level of 50 µg/l for soluble Manganese. The two up-gradient wells, the cross gradient well and the three downgradient wells have not met the cleanup level.

3.1.5 Landfill Gas Monitoring

Fourteen probes are monitored monthly since 1996 to measure percent Methane and percent oxygen in landfill gas. The Appendix 6.2 shows the landfill gas monitoring locations.

The monthly monitoring results for Methane measured (November 2008-January 2010) were compared with the lower explosive limit (LEL) of 5% by volume for Methane. The LEL is set in WAC 173-351-200 (4)(a)(ii). Methane was measured in all the probes less than the LEL of 5% for Methane at the property boundary line which are the points of compliance. Only probes GP-4A and GP-4B which are located inside the refuse measured values above the LEL of 5% for Methane in October 2008, September, June 2009, and January 2010. This results show the production of landfill gas has stabilized and reduced over time.

Centralia landfill operates two flares which are regulated under the air permit no. 94-1614 issued by the South West Air Pollution Control Authority. As a part of the annual reporting required by this permit, in 1999, the average landfill gas flow of 137 standard cubic ft/min. (scfm) was produced versus 17 scfm reported in 2009. This is 88 percent reduction in volume of the landfill gas production since 1999.

The review of the data from the probes at the point of compliance (property boundary line), and annual landfill gas reporting required under the permit show landfill gas production has been reduced/stabilized and LEL for the Methane at the property boundary line, the points of compliance have been met.

3.1.6 Summary

The remedy at the Centralia Landfill can be considered protective of human health and the environment with respect to refuse encapsulation, landfill gas control, surface water quality maintenance, leachate capture, and ground water quality protection.

The presence of engineered controls in the form of fencing and a landfill cap, combined with institutional controls in the form of a restrictive covenant serves to protect human health and the environment from soil or ground water contamination remaining at the Site at concentrations exceeding regulatory standards.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

Cleanup levels at the site were based on regulatory standards rather than calculated risk for chemicals and/or media. These standards were sufficient to be protective of site-specific conditions.

3.3 New applicable state and federal laws for hazardous substances present at the Site

There is no new relevant state or federal standards applicable to the Site.

3.4 Current and projected site use

The southern portion of the Site is currently occupied by the closed Centralia Landfill and the northern portion of the Site is occupied by a solid waste transfer station and commercial building. These uses are not likely to have a negative impact on the risk posed by landfill contained at the Site.

3.5 Availability and practicability of higher preference technologies

The remedy implemented included containment of hazardous substances and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The presence of improved analytical techniques would not affect decisions or recommendations made for the site.

4.0 CONCLUSIONS

The cleanup actions completed at the Site appear to be protective of human health and the environment. More specific reasons are:

- **Surface Water** – The surface water data shows that there is no indication of leachate from the landfill into the surface water at the point of compliance as specified in the CAP. This shows the landfill cover works as designed.

The monitoring frequency will be reduced from quarterly to semi-annually. In order to determine compliance with the compliance level for soluble Arsenic, it will be required the testing of soluble Arsenic to be conducted with a MRL limit of 0.5 µg/l equivalent to compliance level in the CAP.

- **Upper Shallow Groundwater** - The review of the data since 1996 shows the trend for concentration for every parameter is stabilized/downward, the risk to human health and environment from the shallow aquifer has been eliminated and there are no indication of landfill leachate in the groundwater.
- **Deep Groundwater** - The review of the data since 1996 shows the trend for concentration for every parameter is stabilized and downward, the risk to human health and environment from the deep aquifer has been eliminated and there are no indication of landfill leachate in the groundwater.
- **Ground water** - Cleanup levels have not been met at the point of compliance; however, under WAC 173-340-740(6) (d), the cleanup action is determined to comply with cleanup standards, since the long-term integrity of the containment system is ensured and the requirements for containment technologies in WAC 173-340-360(8) have been met.
- **Threat to Drinking Water** - The shallow and deep downgradient compliance monitoring wells are located at the property boundary line approximately 800 to 1,000 ft from the refuse foot print. In general, these wells are not in compliance with the drinking water standards for Manganese and Iron as specified in the CAP.

The comparison of groundwater data from the downgradient wells with a typical leachate concentrations (Present and Long-Term Composition of MSW Landfill Leachate: A Review, 2002 in *Critical Reviews in Environmental Science and Technology*) for Manganese and Iron showed that there are no indication of landfill leachate in the groundwater. Department of Ecology conducted a study titled “[Hydrology and Quality of Groundwater in Centralia-Chehalis Area Surficial Aquifer, December 2005.](#)” Approximately 33% of the wells Ecology tested showed Iron and Manganese concentrations that did not meet drinking water standards for Iron and Manganese. It was concluded that this is a natural condition in many western Washington aquifers that is not considered a health concern.

Therefore, based on landfill leachate composition, background condition for Iron and Manganese in Centralia and Chehalis area and 16 years of groundwater monitoring results, there is no threat from the closed Centralia Landfill to drinking water source in Centralia.

- **Landfill Gas** – The landfill gas production is reduced by 88% from 1999 to 2009. The Methane LEL as specified in WAC 173-351-200 (4)(a)(ii) at the point of compliance have been met. The landfill gas monitoring will be reduced from monthly to quarterly.
- **Environmental Covenants (ECs)** – ECs for the property are in place and will be effective in protecting public health from exposure to hazardous substances and protecting the integrity of the cleanup action. Based on this review, the Department of Ecology has determined that the requirements of the Environmental Covenants are being satisfactorily met. It is the property owner's responsibility to continue to inspect the site to assure that the integrity of the cap is maintained.
- **Future Monitoring** - The groundwater and surface monitoring will be reduced to semi-annual from quarterly and the landfill gas monitoring will be reduced from monthly to quarterly.
- **Data Submission** - The landfill monitoring data has been submitted into Ecology's Environmental Information Management (EIM) system since 2009. Therefore only limited data is available in the EIM system. All the groundwater data should be submitted in the excel format that statistical analysis could be conducted in the next periodic review. Also it will be requested in the future landfill monitoring report, the location of the well No. MW-3D is specified.

In order to determine compliance with the compliance level for soluble Arsenic, it will be required the testing of soluble Arsenic to be conducted with a MRL limit of 0.5 µg/l equivalent to the value stated in the CAP.

4.1 Next Review

The next review for the site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

5.0 REFERENCES

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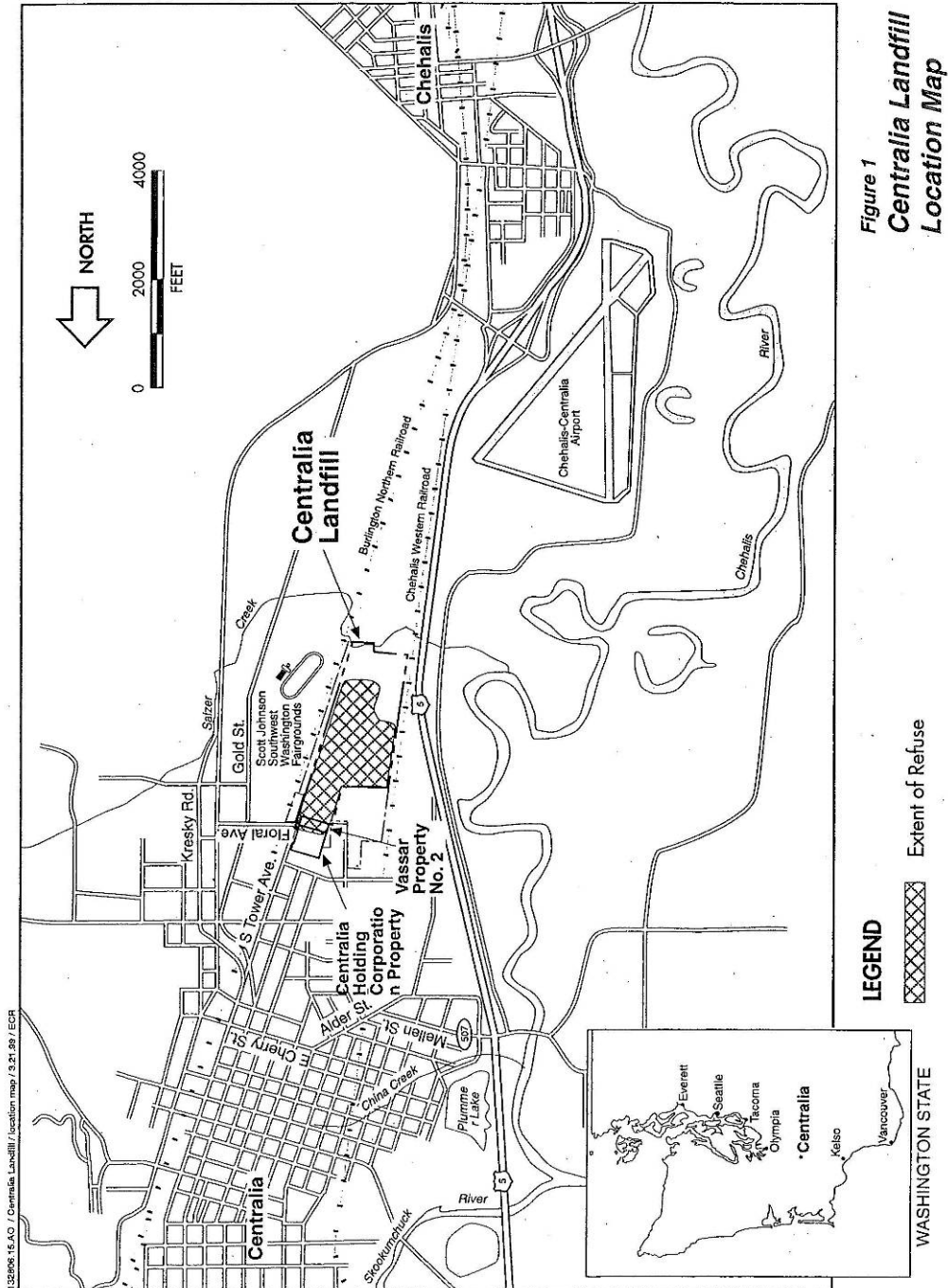
Submittals via E-mail by Randy Prevost with the City of Centralia to Department of Ecology, August 2010.

Present and Long-Term Composition of MSW Landfill Leachate: A Review, 2002, *Environmental Science and Technology*, Peter Kjeldsen,^{1*} Morton A. Barlaz,² Alix P. Rooker,² Anders Baun,¹ Anna Ledin,¹ and Thomas H. Christensen¹

[Hydrology and Quality of Groundwater in Centralia-Chehalis Area Surficial Aquifer](#), December 2005, Department of Ecology.

6.0 APPENDICES

6.1 Vicinity Map



Centralia Landfill

Legend

- Approximate Edge of Refuse
- Fence
- Grassy Wetland Area
- Stormwater Level Spreader
- Culverts with Slide Gates
- Closed Northend Landfill
- Property Line
- Pre-RI Landfill Gas Probes
- New or Replacement Landfill Gas Probes

Map Labels:

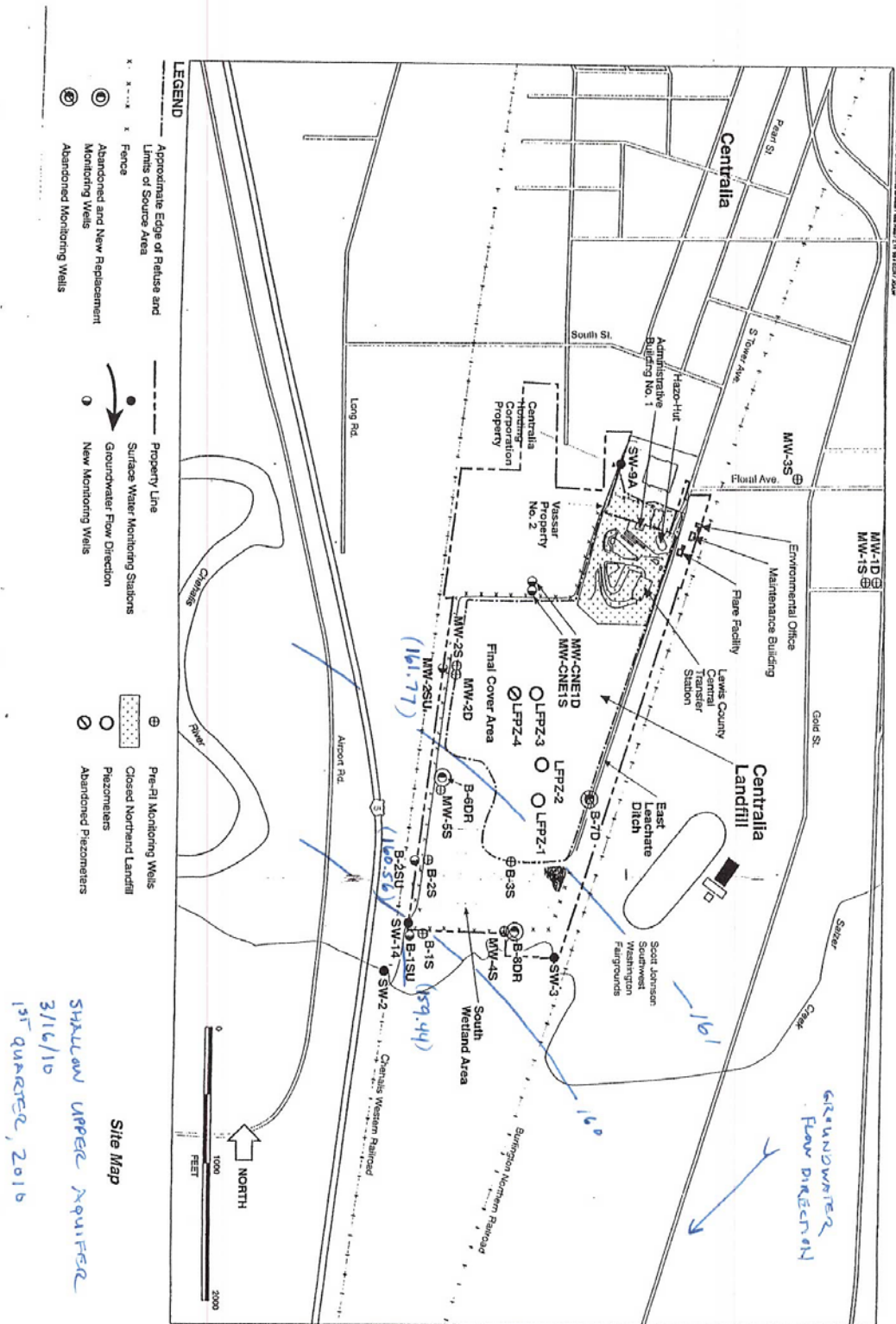
- Environmental Office
- Hazo-Hut
- Maintenance Building
- Flare Facility
- Lewis County Central Transfer Station
- GP-3R
- GP-4A&B
- GP-15
- GP-1
- GP-2
- GP-11
- GP-14
- GP-6
- GP-7
- GP-8
- GP-9
- GP-10
- GP-12
- GP-13
- GP-5R
- Biocfiltration Swale
- Stormwater Swale
- Stormwater Swales
- Southwest Level Spreader
- South Wetland Area
- Salzer Creek
- Weyerhaeuser Ditch
- Centralia Holding Corporation Property
- Vassar Property No. 2
- Final Cover Area
- Southeast Pond and Level Spreader

Scale: 0, 500, 1000 FEET

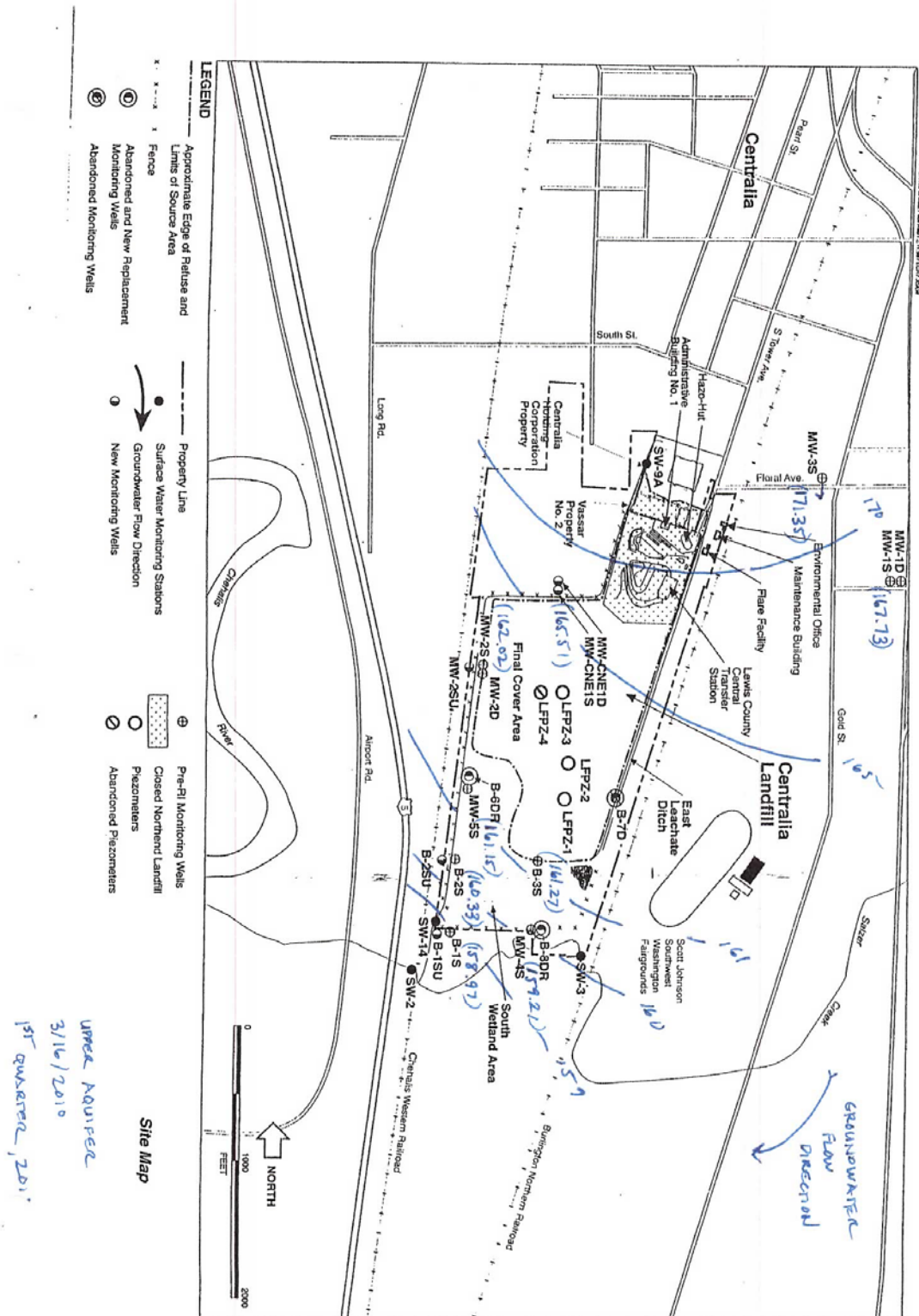
North Arrow: NORTH

Highway: 5

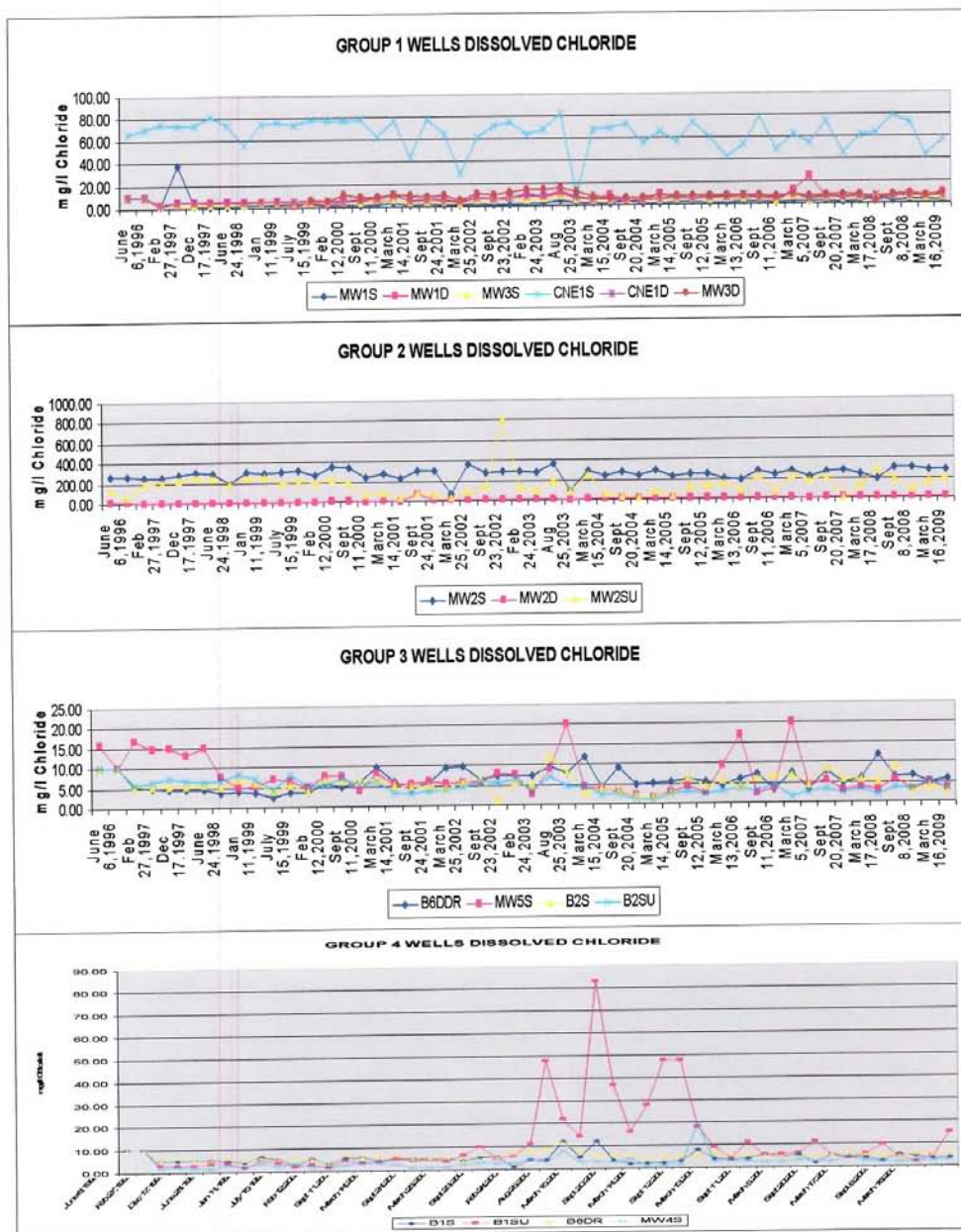
Landfill Gas Probe Locations

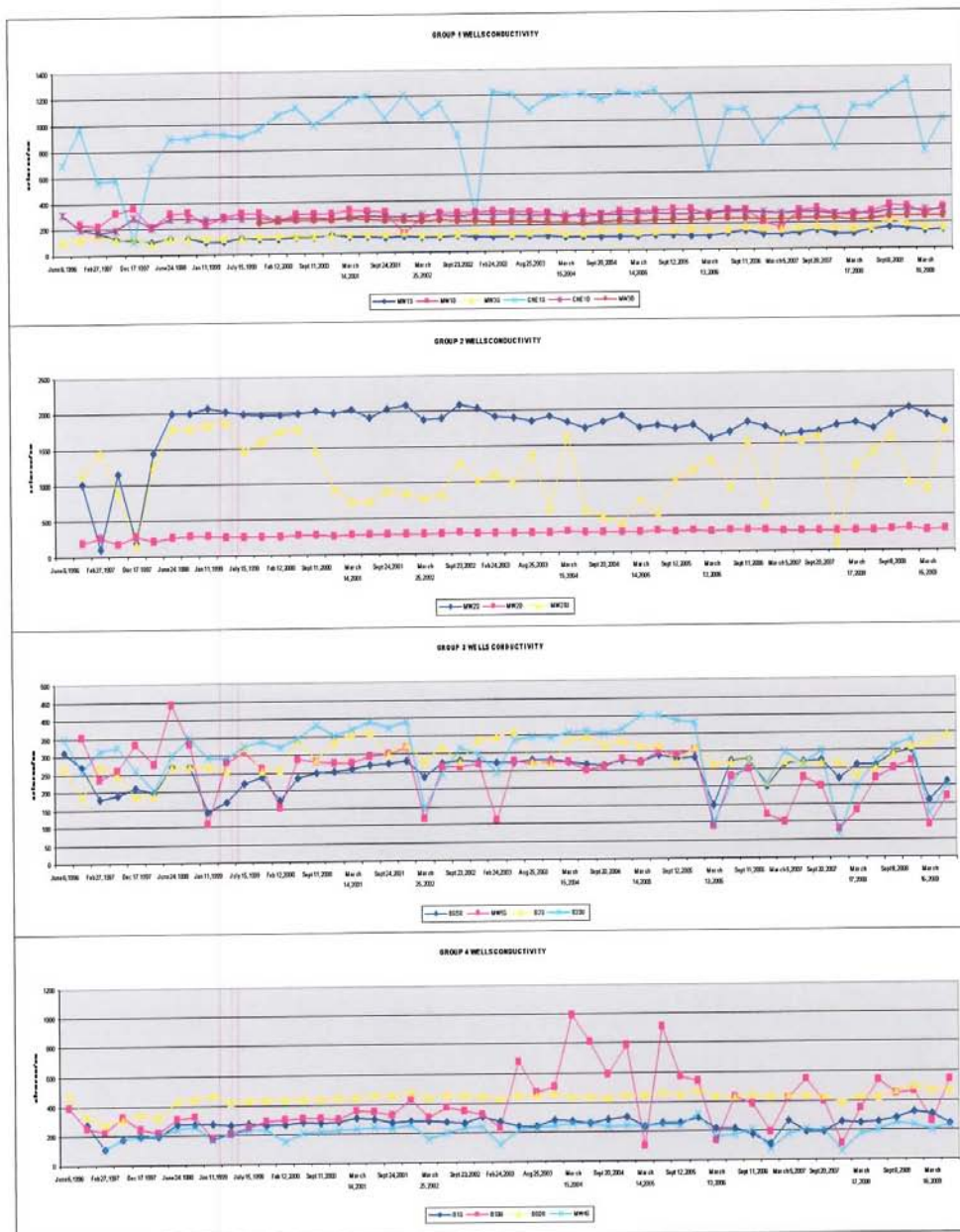


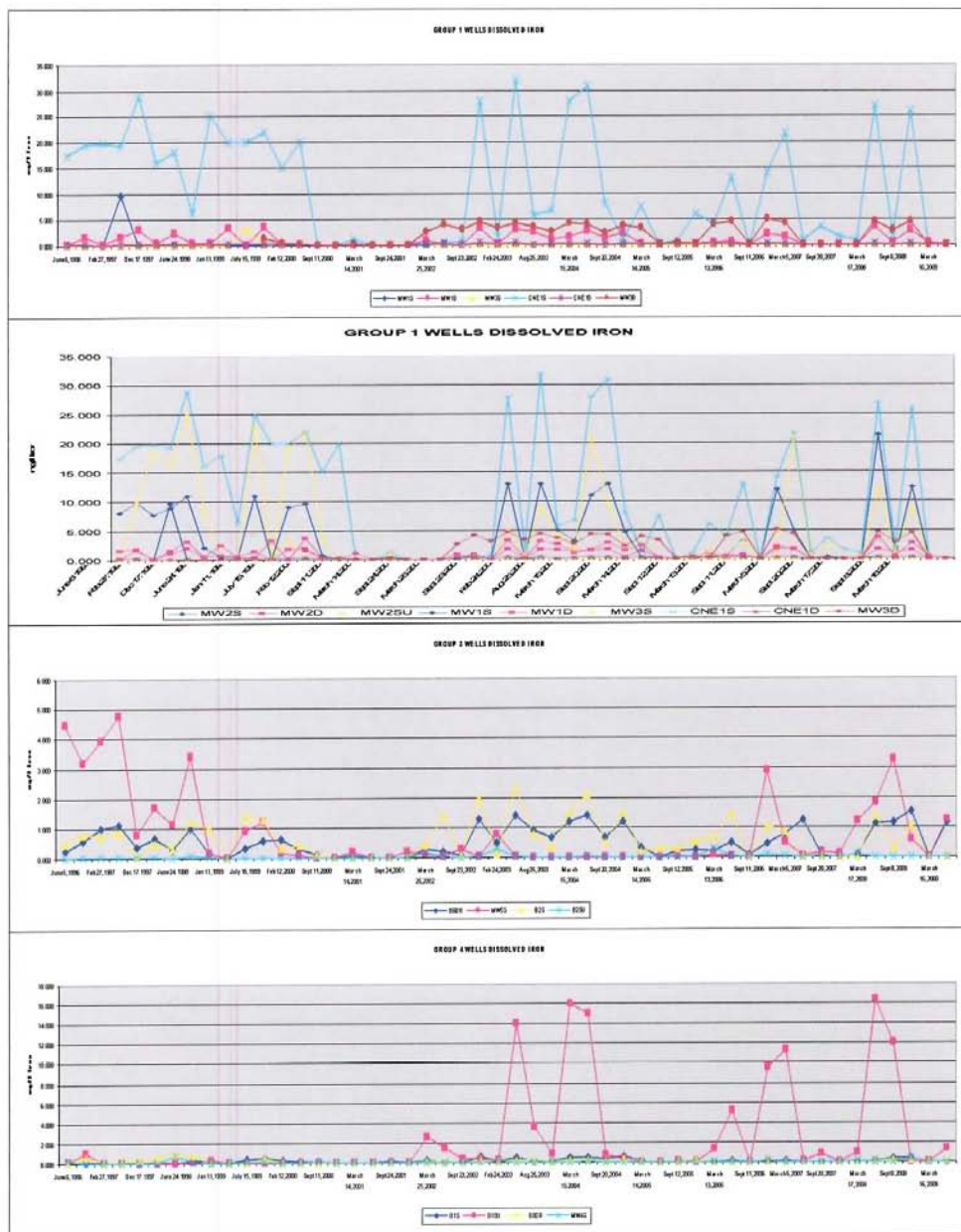


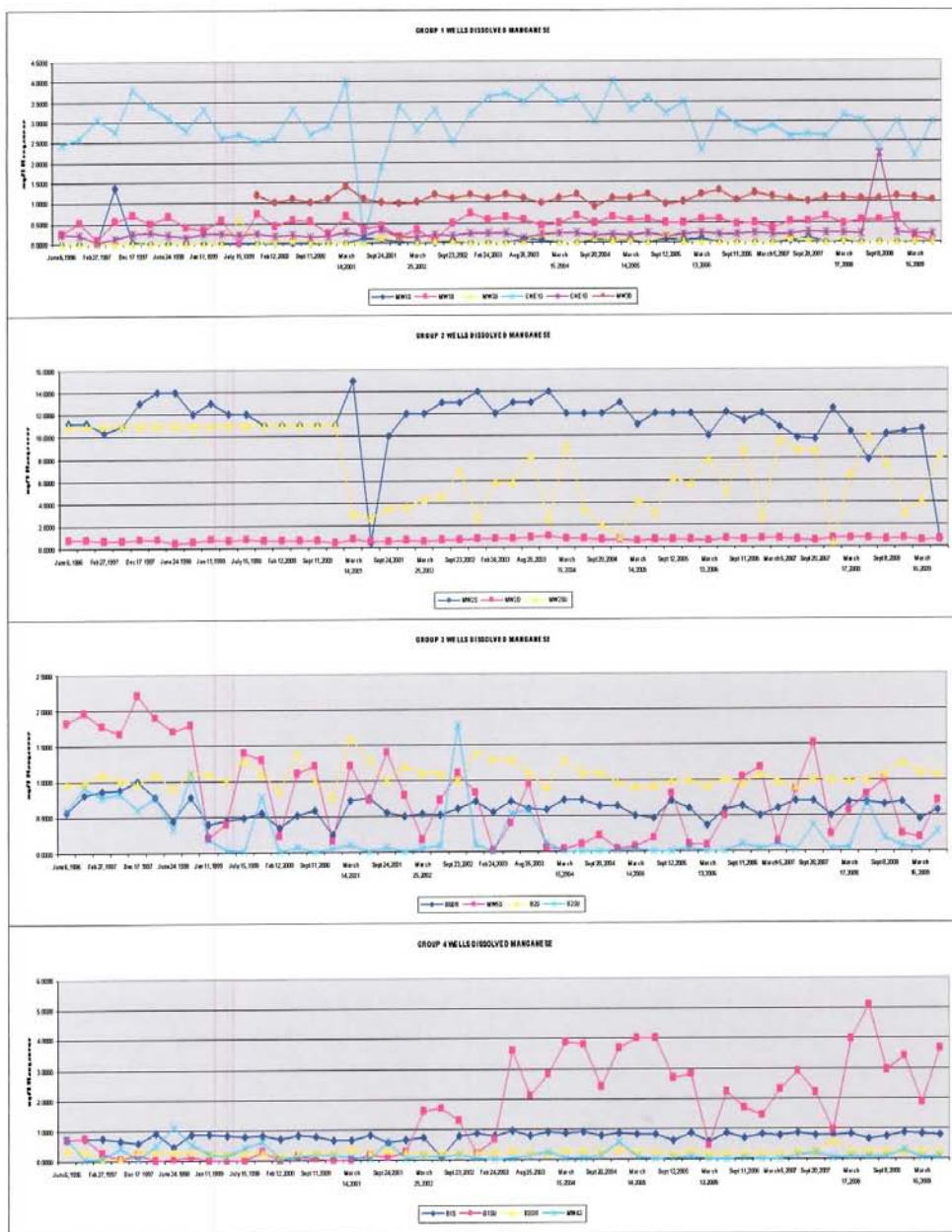


6.3 Groundwater Data









6.4 Cleanup Levels Established in the Cleanup Action Plan

Ground Water Cleanup Levels for the Shallow Upper/Upper Unit:

- Soluble Arsenic cleanup level of 0.27 µg/L with a compliance level of 0.50 µg/L.
- Conductivity has a cleanup level of 700 µmhos/cm.
- Chloride has a cleanup level of 250 mg/L.
- Soluble Iron has a cleanup level of 300 µg/L.
- Soluble Manganese has a cleanup level of 50 µg/L.

Ground Water Cleanup Levels for the Lower Unit:

- Soluble Arsenic cleanup level of 5.0 µg/L.
- Soluble Iron has a cleanup level of 300 µg/L.
- Soluble Manganese has a cleanup level of 50 µg/L.

Surface Water Standards

- Soluble Arsenic cleanup level of 0.27 µg/L with a compliance level of 0.50 µg/L.

6.5 Environmental Covenants

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EXHIBIT D

RESTRICTIVE COVENANT

CENTRALIA LANDFILL

Pursuant to the Model Toxics Control Act, Chapter 70.105D RCW, a remedial action was conducted at the property that is the subject of this Restrictive Covenant. The work that will be done to remediate the property and conduct long-term operation and maintenance (hereafter the "Cleanup Action") is described in the Consent Decree entered in State of Washington Department of Ecology v. Lewis County, City of Centralia, City of Chehalis, City of Morton, City of Mossyrock, Town of Pe Ell, and City of Vader, United States District Court - Western District of Washington Cause No. C91-5100(T) WD, and in attachments to the Consent Decree and in documents referenced in the Consent Decree.

The Cleanup Action conducted at the property is described in the following documents:

Centralia Landfill Cleanup Action Plan, Washington State Department of Ecology, Southwest Regional Office, September 1999.

Centralia Landfill Feasibility Study Report, CH2M Hill, Inc., April 1998.

Centralia Landfill Remedial Investigation Report, CH2M Hill, Inc., April 1998.

Centralia Landfill Second Interim Action Final Cover System Post-Closure Operations and Maintenance Manual, CH2M Hill, Inc., September 1995.

Centralia Landfill As-Built Report for the Construction of the Final Cover System, CH2M Hill, Inc., September 1995.

Centralia Landfill Second Interim Action Cover System Engineering Report, CH2M Hill, Inc., March 1994.

These documents are on file at Ecology's Southwest Regional Office.

This Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Lewis County, City of Centralia, City of Chehalis, City of Morton, City of Mossyrock, Town of Pe Ell, and City of Vader (hereafter the "Defendants" or "Centralia Landfill Closure Group" or "CLCG"), their successors and assigns, and the Washington State Department of Ecology (hereafter "Ecology"), its successors and assigns.

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This Restrictive Covenant is required by Ecology under WAC 173-340-440 because the Cleanup Action resulted in hazardous substances remaining on the property beneath a final cover system, and because groundwater concentrations of hazardous substances exceed Method B cleanup levels established under WAC 173-340-720.

The undersigned, City of Centralia, is the fee owner of real property (hereafter "the Property") in the County of Lewis, State of Washington that is subject to this Restrictive Covenant. The property is legally described in Exhibit A to the Consent Decree entered in State of Washington Department of Ecology v. Lewis County, City of Centralia, City of Chehalis, City of Morton, City of Mossyrock, Town of Pe Ell, and City of Vader, United States District Court - Western District of Washington Cause No. C91-5100(T) WD, and that legal description is hereby incorporated by reference.

The undersigned, City of Centralia, makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section I.

- a. Existing fencing shall not be removed and shall be maintained to prevent unauthorized access to the Property.
- b. No groundwater may be taken for any use from the Property unless the groundwater removal is part of monitoring activities associated with an Ecology-approved compliance monitoring plan.
- c. An area of the Property has been designated as a wetland enhancement area. The Owner of the Property must give thirty (30) day advance written notice to Ecology of any activities that may impact the wetland enhancement area and must obtain the written approval of Ecology and other agencies of jurisdiction prior to commencement of any such activities.
- d. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Cleanup Action, or that may create a new exposure pathway, is prohibited. Such activities are permissible only if: (1) they are part of the routine maintenance system requirements performed in accordance with the Centralia Landfill Second Interim Action Final Cover System Post-Closure Operations and Maintenance Manual; (2) they are allowed or

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required under the Centralia Landfill Cleanup Action Plan; (3) they are part of monitoring activities associated with an Ecology-approved compliance monitoring plan; (4) immediate actions are necessary in response to emergency situations; or (5) Ecology provides prior written approval for such activities.

- e. No new structures shall be constructed on areas of the Property where solid waste has been deposited without the written approval of Ecology and written approval by the local agency or agencies of jurisdiction.
- f. The Property shall be used only for industrial or commercial land uses, as described in WAC 173-340-740(1)(c), and defined in and allowed under the City of Centralia zoning regulations.

Section 2. Any activity on the Property that may interfere with the integrity of the Cleanup Action and continued protection of human health and the environment is prohibited without prior written approval from Ecology.

Section 3. The Owner of the Property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Cleanup Action on the Property.

Section 4. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions herein on the use of the Property.

Section 5. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve an inconsistent use only after an opportunity for public notice and comment is provided.

Section 6. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Cleanup Action; to take samples, to inspect remedial actions conducted at the Property, and to inspect records that are related to the Cleanup Action.

Section 7. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and comment, concurs.

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CITY OF CENTRALIA

Date: 7-19-01

By: J.D. Fouts
City Manager

Printed Name: J.D. Fouts

Title: City Manager

State of Washington)
)ss.
County of Lewis)

I certify that I know or have satisfactory evidence that J.D. Fouts, Centralia City Manager, is the person who appeared before me and said person acknowledged that he signed this instrument and acknowledged it to be his free and voluntary act for the uses and purposes mentioned in the instrument.

Dated this 19th day of July, 2001.



Deena Ashmore
Notary Public in and for the State of

Washington, County of Lewis. Residing
in Centralia. My
appointment expires 4-20-02.



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**RESTRICTIVE COVENANT
HAROLD R. AND MARY L. VASSAR,
VASSAR PROPERTY NO.2**

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Harold R. and Mary L. Vassar, their successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following documents:

Centralia Landfill Cleanup Action Plan, Washington State Department of Ecology, Southwest Regional office, September 1999.

Centralia Landfill Feasibility Study Report, CH2M HILL, Inc., April 1998.

Centralia Landfill Remedial Investigation Report, CH2M HILL, Inc., April 1998.

These documents are on file at Ecology's Southwest Regional Office.

This Restrictive Covenant is required because the Remedial Action resulted in solid waste remaining on the property beneath a soil cover and because concentrations of chloride, conductivity, arsenic, iron, manganese in groundwater exceed the Model Toxics Control Act Method B Cleanup Level established under WAC 173-340-720. In addition, a conditional point of compliance has been established for groundwater. The point of compliance is the property boundary.

The undersigned, Harold R. and Mary L. Vassar, are the fee owners of real property (hereafter "Property") in the County of Lewis, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in attachment A of this Restrictive Covenant and made a part hereof by reference.

Harold R. and Mary L. Vassar make the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

- a. Existing fencing shall not be removed and shall be maintained to prevent access to the Property.



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- b. No groundwater may be taken for any use from the Property unless the groundwater removal is part of monitoring activities associated with an Ecology-approved compliance monitoring plan.
- c. Any activity on the Property that may result in the release or exposure to the environment of the solid waste that is contained beneath the existing soil cover, or that may create a new exposure pathway, is prohibited.
- d. The entire property contains solid waste contained beneath a soil cover. The Owner shall not alter, modify, or remove the existing structure[s] or the soil cover in any manner that may result in the release or exposure to the environment of the contained refuse or create a new exposure pathway without prior written approval from Ecology.
- e. No new structures shall be constructed on areas of the Property where solid wastes have been deposited without the written approval of Ecology and approval by the local agency(s) of jurisdiction.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if



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Ecology, after public notice and opportunity for comment, concurs.

Signed under protest

A handwritten signature of Harold R. Vassar in cursive script.

Harold R. Vassar

6-9-00

Date Signed

A handwritten signature of Mary L. Vassar in cursive script.

Mary L. Vassar

6-9-00

Date Signed



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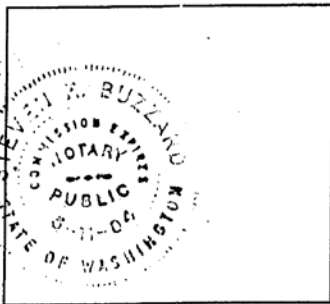
STATE OF WASHINGTON)

) ss

COUNTY OF LEWIS

I certify that I know or have satisfactory evidence that David & Mary Ellen is the person who appeared before me, and said person acknowledged that he/she signed this instrument, and acknowledged that he/she signed the same as his/her free and voluntary act and deed, for the uses and purposes mentioned in the instrument.

Dated: 6/9/00



Notary Public [Signature]
Print Name Steve Buzzard
My commission expires 5/11/04

(Use this space for notarial stamp/seal)



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**ATTACHMENT A
VASSAR PROPERTY NO. 2
LEGAL DESCRIPTION**

A part of the Southeast Quarter of the Northwest Quarter (SE $\frac{1}{4}$, NW $\frac{1}{4}$) Section Seventeen (17), Township 14 North, Range 2 West, Willamette Meridian, Lewis County, Washington and described as follows, to-wit:

Beginning at the North line of Lot eleven (11), Block 9, Galvin's Second South Tower Addition and the Westerly Right-of-way line of Tower Avenue (Northeasterly corner of Lot Eleven (11)); thence North $73^{\circ}11'$ West 30.00 feet along the North line of said Lot eleven (11); thence South $16^{\circ}49'$ West 242.00 feet parallel to Tower Avenue to the TRUE PLACE OF BEGINNING: thence North $73^{\circ}11'$ West 485.00 feet; thence South $16^{\circ}49'$ West 150 feet; thence South $73^{\circ}11'$ East 485.00 feet; thence North $16^{\circ}49'$ East 150.00 feet to the TRUE PLACE OF BEGINNING and containing 72,750 square feet (1.67011 acres).

Also together with an Easement for ingress and egress and more particularly described as follows:

Beginning at the original Southeast corner of Lot thirteen (13), Block nine (9) of Galvin's Second South Tower Addition to the City of Centralia, Washington; thence North $89^{\circ}39'15''$ West, 31.28 feet; thence South $16^{\circ}49'$ West, 303.39 feet; thence South $73^{\circ}11'$ East 64 feet; thence north $16^{\circ}49'$ east 259.75 feet to the South right-of-way line of Floral Street; thence North $89^{\circ}39'15''$ West 35.46 feet; thence $16^{\circ}49'$ East 62.56 feet to the POINT OF BEGINNING.

Said Easement is provided with the understanding that the City of Centralia, at a future date, may at its discretion dedicate said easement as a public right-of-way.



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**RESTRICTIVE COVENANT
CENTRALIA CHRISTIAN SCHOOL
FORMER CENTRALIA HOLDING CORPORATION PROPERTY**

MAR 20

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Centralia Christian School, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following documents:

Centralia Landfill Cleanup Action Plan, Washington State Department of Ecology, Southwest Regional office, September 1999.

Centralia Landfill Feasibility Study Report, CH2M HILL, Inc., April 1998.

Centralia Landfill Remedial Investigation Report, CH2M HILL, Inc., April 1998.

These documents are on file at Ecology's Southwest Regional Office.

This Restrictive Covenant is required because the Remedial Action resulted in solid waste remaining on the property beneath a soil cover and because concentrations of chloride, conductivity, arsenic, iron, manganese in groundwater exceed the Model Toxics Control Act Method B Cleanup Level established under WAC 173-340-720. In addition, a conditional point of compliance has been established for groundwater. The point of compliance is the property boundary.

The undersigned, Centralia Christian School, is the fee owner of real property (hereafter "Property") in the County of Lewis, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in attachment A of this Restrictive Covenant and made a part hereof by reference.

Centralia Christian School makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

- a. Existing fencing shall not be removed and shall be maintained to prevent access to the Property.



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of Ecology (SWRO)

- b. No groundwater may be taken for any use from the Property unless the groundwater removal is part of monitoring activities associated with an Ecology-approved compliance monitoring plan.
- c. Any activity on the Property that may result in the release or exposure to the environment of the solid waste that is contained beneath the existing soil cover, or that may create a new exposure pathway, is prohibited.
- d. The southern portion of the property contains solid waste contained beneath a soil cover. The Owner shall not alter, modify, or remove the existing structures[s] or the soil cover in any manner that may result in the release or exposure to the environment of the contained refuse or create a new exposure pathway without the written approval from Ecology.
- e. No new structures shall be constructed on areas of the Property where solid wastes have been deposited without the written approval of Ecology and approval by the local agency(s) of jurisdiction.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if



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Ecology, after public notice and opportunity for comment, concurs.

Carrie Johnson
Carrie Johnson

Board President
Title

3/24/2000
Date Signed

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WA State Department
of Ecology (SWRO)



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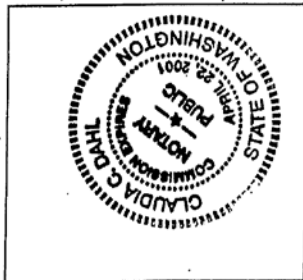
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Washington Department
of Ecology (SWRO)

STATE OF WASHINGTON)
) ss.
COUNTY OF LEWIS)

I certify that I know or have satisfactory evidence that
Carrie Johnson is the person who appeared before me, and said
person acknowledged that he/she signed this instrument, on oath stated that he/she was
authorized to execute the instrument and acknowledged it as the board president of
the Centralia Christian School to be the free and voluntary act of such party for the
uses and purposes mentioned in the instrument.

Dated: 3/24/00



Notary Public

Print Name Claudia C. Dahl

My commission expires 4/22/00

(Use this space for notarial stamp/seal)



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**ATTACHMENT A
FORMER CENTRALIA HOLDING CORPORATION PROPERTY
LEGAL DESCRIPTION**

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WA State Department
of Ecology (SWRO)

A part of the Southeast Quarter of the Northwest Quarter, Section 17, Township 14 North, Range 2 West, Willamette Meridian and the Southerly 18 feet of Lot 4 and all of Lots 5 through 13, Block 9 of the GALVIN'S SECOND SOUTH TOWER ADDITION to Centralia and all of the vacated alley and streets adjacent to said Lots and more particularly described as follows, to-wit:

Beginning at a point on the Easterly line of Lot 4, Block 9, of the GALVIN'S SECOND SOUTH TOWER ADDITION, to the City of Centralia which lies 18.00 feet Northerly of the Southeasterly corner of said Lot 4; thence North 73°11' West, said bearing being at right angle to Tower Avenue 515 feet; thence South 16°49' West, 440.00 feet; thence South 73°11' East, 515.00 feet to the Westerly line of Tower Avenue if extended Southerly; thence North 16°49' East along the said West line of Tower Avenue 440.00 feet to the POINT OF BEGINNING and excepting therefrom the Easterly 30 feet of the Southerly 242 feet and containing 5.04 acres, more or less.

6.6 Photo log

Photo 1: Landfill Entrance w/ Cap to the Right – from the north



Photo 2: Cap Surface with Monitoring Wells and Gas Collection Points – from the north



Photo 3: West Edge of Landfill Cap - from the north



Photo 4: South End of Landfill w/ Wetland to the Right – from the west

