PERIODIC REVIEW

Walla Walla Farmers Co-op
Walla Walla, WA

November 2007
Washington Department of Ecology
Toxics Cleanup Program
Eastern Regional Office
Spokane, WA

1.0 INTRODUCTION

This report presents the Washington State Department of Ecology's (Ecology) periodic review for the Walla Walla Farmers Co-op (Site). This periodic review is applicable as part of the site cleanup process under the Model Toxics Control Act (MTCA), Ch. 70.105D RCW, implemented by the Washington State Department of Ecology (Ecology). Periodic reviews evaluate post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected, and are required for sites where an institutional control is part of the cleanup action.

Cleanup actions were conducted by the Walla Walla Farmers Co-op (Co-op) in 1991. Actions at the site were triggered by an Ecology Notice of Penalty in 1985. The cleanup action under this notice was initiated prior to full implementation of MTCA. The completed actions addressed contaminated soils, but residual groundwater contamination remained. Groundwater monitoring has been ongoing since completion of the cleanup action. Ecology has determined that a periodic review, also referred to as a five year review, of the site is appropriate.

When evaluating whether human health and the environment are being protected, the factors Ecology should consider as per WAC 173-340-420(4) include:

1. The effectiveness of ongoing or completed cleanup actions;
2. New scientific information for individual hazardous substances of mixtures present at the site;
3. New applicable state and federal laws for hazardous substances present at the Site;
4. Current and projected site use;
5. Availability and practicability of higher preference technologies; and
6. The availability of improved analytical techniques to evaluate compliance with cleanup levels.

Notice of this periodic review will be placed in Ecology's site register and will be available for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 SITE DESCRIPTION AND HISTORY

The Site is located at 111 Ninth Ave, Walla Walla, in Walla Walla County, Washington near the intersection of N. Eighth Ave. and W. Rose St. (figure 1). It is currently in use as a farm chemical storage, mixing, and handling facility, with the southeast part of the property operating as a gas station and quick mart. It is owned by the Walla Walla Farmers Cooperative, an association which operates on a non-profit cooperative basis as an agent for its members. The Co-op former store and office have been at the present location since 1947, but the warehouse and fertilizer shop were originally owned and operated by Pacific Supply. The Co-op purchased these other facilities in 1963. Past and present operations consist of the loading of solid or liquid farm chemicals into containers for transport to a client, and then the rinsing of those transport

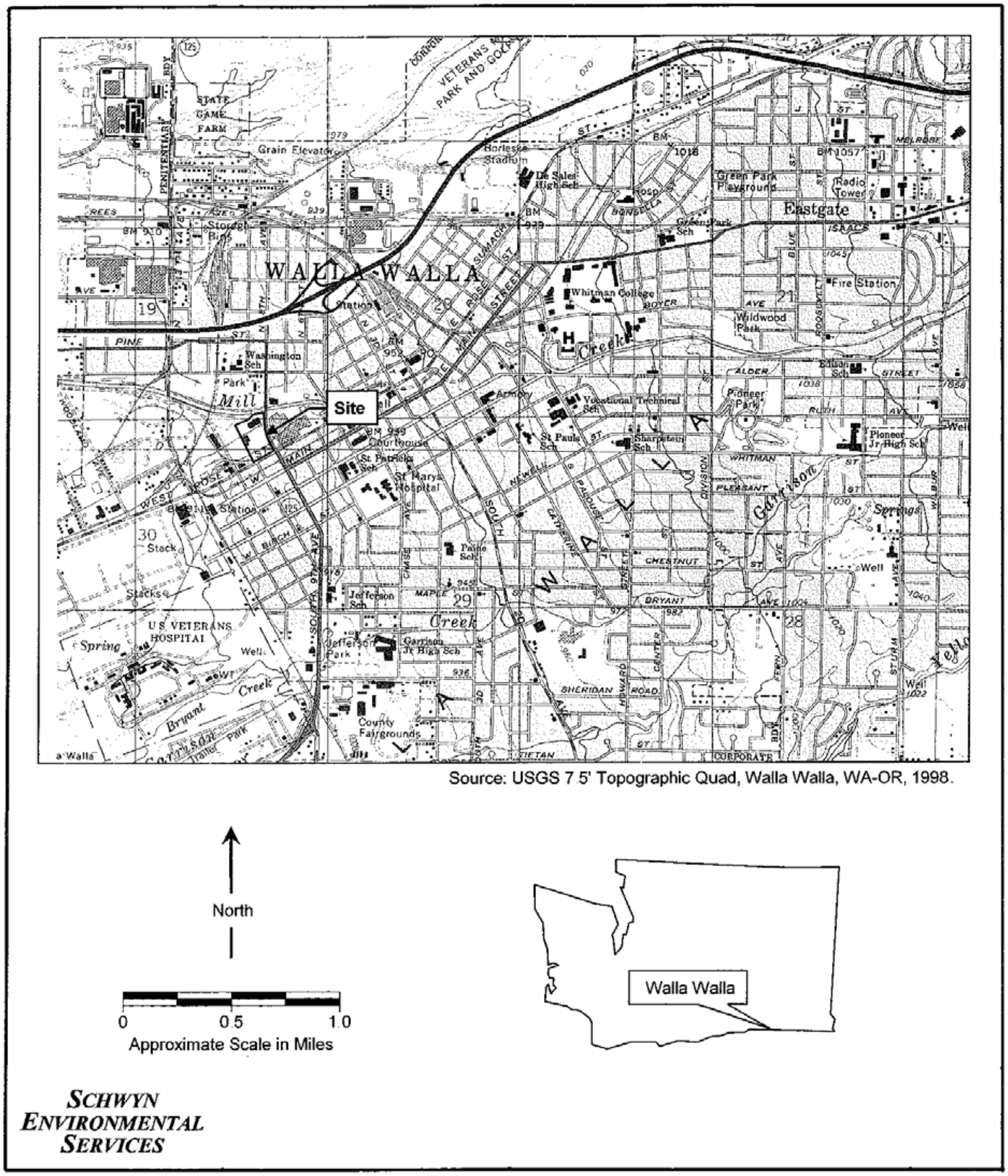


Figure 1. Site Map

containers. In the past, the rinsing of wheeled pesticide/herbicide and fertilizer sprayers has also taken place. Initially, the rinsing of transport containers and sprayers took place directly on the ground with no rinse water control. In 1966, a concrete slab was installed, along with drain lines, a concrete septic tank, and a drainfield, to manage rinse water. In 1978, the drainfield failed. After investigation, it was determined that the septic tank had filled with silt and spilled over into the drainfield which subsequently became plugged. A second septic tank was installed in line with the first, and the silt sludge from the first tank was removed and disposed of off site by the Co-op. The location(s) of disposal is unknown. Additionally, a dry well and new drainfield were constructed to replace the failed one. Between 1979 and 1982, an estimated 4,000 to 5,000 gallons of silt sludge were removed from the septic tanks and disposed of off-site. In 1985, an additional 1,000 gallons of silt sludge were removed and disposed of off-site. The drainfield was taken out of use and replaced with an evaporation pond in June 1986.

Depth to groundwater at the site ranges between 7 and 13 feet below ground surface, and flow direction is generally to the west and southwest. Mill Creek borders the north side of the property and flows to the southwest. It is a concrete-lined channel until it reaches the northeast corner of the property, where it becomes unlined. At that point, it is a losing reach of the stream.

2.2 SITE INVESTIGATIONS AND CLEANUP

A series of investigations and cleanup actions have taken place regarding soil and groundwater contamination at the Site. The following paragraphs chronologically list the separate activities and investigations that have taken place. Reports documenting these investigations can be found at Ecology's Eastern Regional Office in Spokane.

Investigatory work at the site began with the collection of sludge samples by Ecology in May 1985 due to a complaint about illegal dumping of sludge. Samples of the sludge were collected and analyzed for pesticides. Sample results confirmed lindane and chlordane were present in the sludge. Ecology issued a Notice of Penalty in 1985 in response to the lack of waste characterization and illegal dumping of sludge. This notice, in part, required the Co-op to conduct soil and groundwater investigations to define the nature and extent of contamination, submit plans for cleanup of contamination, and implement a groundwater and surface water monitoring program. In response to this notice, the Co-op made plans for an environmental investigation at the site in 1987. The drainlines connecting the wash pad with the old drainfield were removed, the drainfield was excavated, six monitoring wells were installed to collect groundwater samples, and soil samples were collected from several test pits (figure 2). The Phase I Hydrogeologic Investigation was completed in November 1987, indicating the presence of 2,4-dichlorophenoxyacetic acid (2,4-D) and chlordane in soil, and nitrate and various herbicides in groundwater.

A second phase Hydrogeologic Investigation was completed in May 1989, which involved the installation of a seventh monitoring well and additional groundwater sampling. Sampling confirmed the presence of nitrate and various herbicides in groundwater. Additionally, an exposure assessment was completed in September 1989. Ecology performed a Site Hazard Assessment and ranking in August 1990 under the newly established MTCA regulation. The site

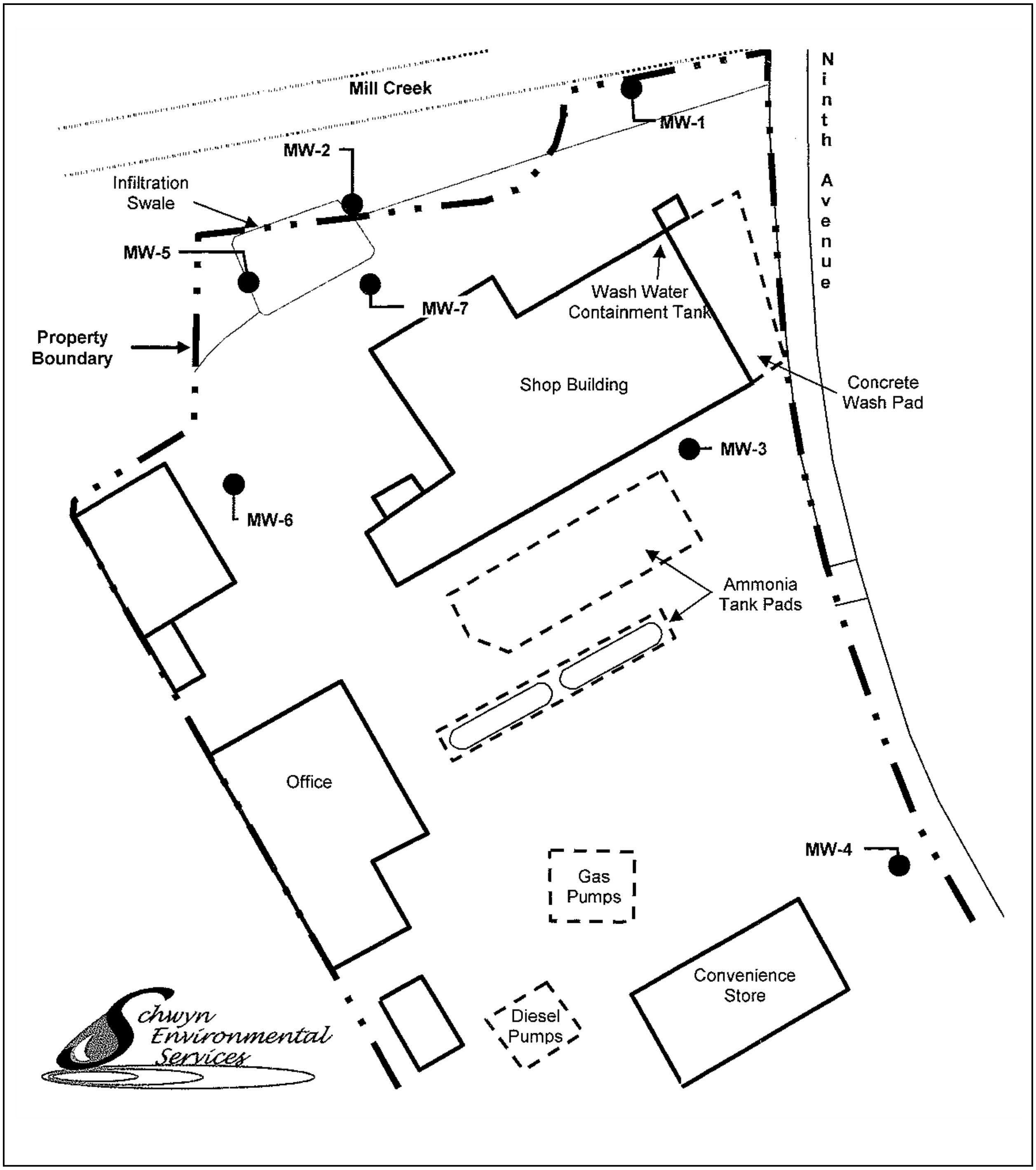


Figure 2. Well Location Map

was given a ranking of 1 because of risks due to the presence of contaminants in groundwater and the toxic and chemical characteristics of the contaminants. In September 1990, a Remedial Action Workplan was submitted to and approved by Ecology, under which part of the drainfield excavation took place in the summer of 1991. A Drainfield Area Cleanup Plan was then submitted in December 1991 to fully address remaining issues with the drainfield. Under this plan, the drainfield and former drainlines were reexcavated, and engineered modifications to the storm water and wash water handling facilities were completed, including the installation of a concrete wash pad. Ecology approved the storm water collection and disposal plan in December 1992. Finally, an asphalt cap was placed over the former drainfield and drainlines in late 1993. It is assumed that an unknown amount of contaminated soil may remain below the asphalt cap and/or the building adjacent to the wash pad.

In October 1991, the Compliance Monitoring Plan (CMP) was implemented, which involved the semiannual collection of groundwater samples for chlordane, simazine, diallate, triallate, pronamide, alachlor, dinoseb, 2,4-D, picloram, DDT/DDD, nitrate, and nitrite. Groundwater quality measurements, such as pH and conductivity, were also taken. Method C cleanup criteria were used because of the industrial nature of the property. Since that time, a series of modifications and amendments to the CMP have been implemented, and are documented here. If sampling for a certain contaminant was terminated, it was because it had not been detected in four quarters of groundwater monitoring.

- January 1992 – Sampling frequency changed to quarterly.
- January 1993 – Termination of DDT/DDD sampling in wells 2, 5, and 7; one final sampling of creek (for a total of 1 year of creek monitoring); termination of sampling in wells 3 and 4; termination of sampling for 2,4-D and picloram in all wells; lab method change.
- March 1993 – Termination of field pH and conductivity measurements; termination of sampling for dinoseb in wells 1 and 6; termination of Ecology notification for MTCA exceedances.
- Late 1993 – Monitoring didn’t happen during this quarter due to installation of asphalt cap.
- December 1995 – Termination of sampling for dinoseb in remaining wells.
- January 1998 – Sampling frequency changed to semiannual; termination of sampling of well 4; ammonia analysis removed.
- May 1998 – Termination of sampling from wells 2, 3, and 7; conditional point of compliance set at the property boundary (wells 5 and 6); determination was made that MTCA Method B cleanup levels apply for monitoring.
- September 2000 – Termination of sampling for nitrite, diallate, simazine, pronamide, triallate, alachlor; one-time sampling of wells 2 and 7 for chlordane and nitrate.
- May 2001 – Lab analysis changed from technical chlordane to alpha-gamma chlordane.
- March 2006 – Sampling frequency changed from semi-annual to annual (fall); groundwater levels measured only annually; one-time resample of wells 2 and 7 to take place in fall 2006.

On May 4, 1994, a restrictive covenant was placed on the property. This restrictive covenant documents the presence of contaminated groundwater and soils on defined areas of the property, and restricts activities in these areas to prevent exposure to pesticides. It also limits the property to an Industrial use, and requires Ecology notification of a property sale.

2.3 Chemical Properties of Chlordane

Chlordane is the only pesticide which continues to be present in groundwater. Chlordane has several chemical properties that affect its presence and movement in the environment. Chlordane is a highly chemically stable organochlorine pesticide, and although this property proves useful for nuisance pest control, it also means that it persists for a long time in the environment and is difficult to break down. Chlordane does not chemically degrade, is not broken down by water nor air, and is only slightly degraded by ultraviolet light. Mass transfer through volatilization can occur, although this is typically more common at shallow depths where more contact with air is present. The most common means for reduction in soil concentration is through volatilization. It is highly stable and immobile when bound to soil.

Chlordane is highly insoluble in water, and tends instead to bind to soil particles. In most cases, this means that it isn't present in water, however groundwater contamination at the site is well-documented. It is expected that at high enough concentrations, there is no more sorption capacity of the soil and it can enter groundwater. Chlordane is most commonly removed from groundwater through sorption to soil, although some volatilization does occur.

3.0 Periodic review

3.1 Regulation

A periodic review of the cleanup action takes place at least every five years after the initiation of the cleanup action under MTCA. A periodic review is required at MTCA sites where any of the following occur:

- The department conducts a cleanup action;
- The department approves a cleanup action under an order, agreed order, or consent decree; or
- As resources permit, whenever the department issues a no further action opinion

AND one of the following conditions exist:

- An institutional control and/or financial assurance is required as part of the cleanup action;
- The cleanup level is based on a practical quantitation limit as provided for under WAC 173-340-707; or
- 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

The requirements for investigation and cleanup at the Co-op site were conducted under the regulatory authority at the time the penalty was issued in 1985. Although the action was not taken under MTCA, elements of MTCA can be applied in the determination of impacts to human health and the environment at the Co-op site. The site does have an institutional control and is undergoing long-term groundwater monitoring. Ecology has determined that it is appropriate to complete a periodic review of this site to document the actions that have taken place and to apply the following review criteria (Sections 3.3 through 3.8) to the cleanup action.

3.2 Basis

This review is based on documents describing the actions listed in Section 2.2, a field inspection of the site, interviews with Co-op representatives, and compliance monitoring reports.

3.3 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

The concrete cap over the wash pad area and the asphalt cap over the former drainfield currently provide protection from direct contact with any contaminated soils, and prevent infiltration of surface water through contaminated soils. A restrictive covenant was recorded and is in place, which limits the use of the site. These limitations include industrial use only, limitations on groundwater withdrawal and use, and no disturbance of pavement or removal of soils. A copy is provided as Appendix A.

Concentrations of contaminants have decreased significantly. In Section 2.2, the history of contaminant sampling was presented; groundwater was analyzed for 12 chemicals. As sampling progressed over time, many contaminants were only present below cleanup levels or no longer detected. As explained in Section 2.2, existing groundwater sampling is only for chlordane and nitrate. Figures 2 and 3 show the trends for both these contaminants over the past 15 years.

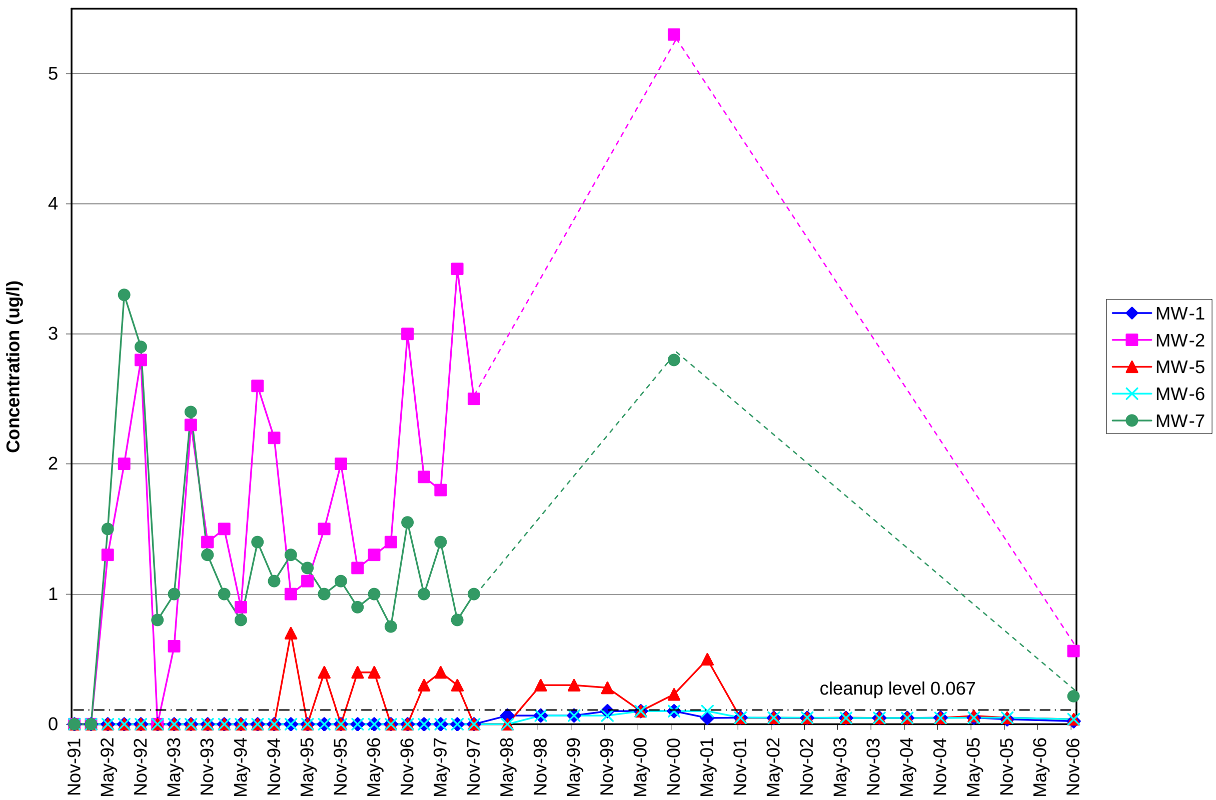


Figure 2. Chlordane Concentrations

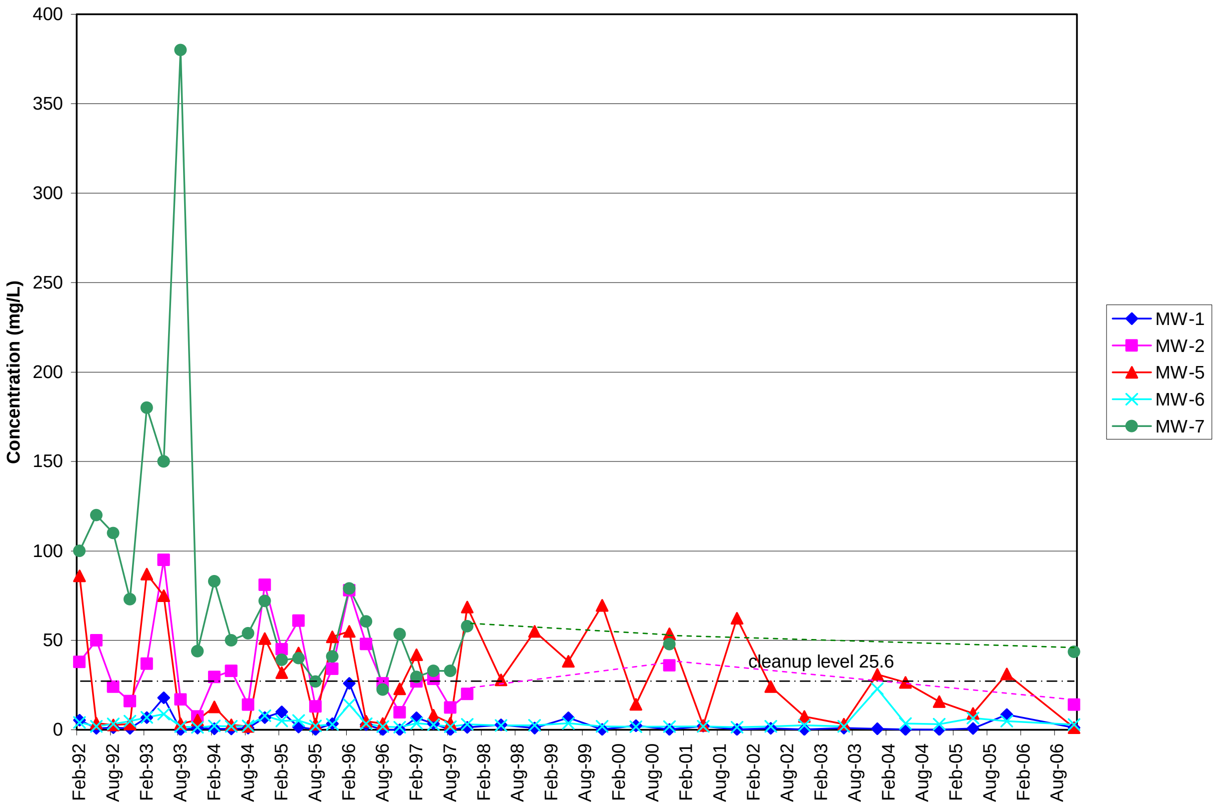


Figure 3. Nitrate Concentrations

Dashed lines represent the gap in sampling at monitoring wells 2 and 7, since the November 2000 and November 2006 events were one-time. The straight dot-dash line represents the cleanup level for each contaminant. These levels are based on Method B values calculated in accordance with MTCA at the time of revisions to the CMP in 1998. In reviewing these graphs, it should be noted that for chlordane, the laboratory methodology changed in May 2001 (see Section 3.8 and Appendix B). Because of this change, much of the variability in the concentrations is gone. MW-5 hasn’t had a detection above cleanup levels since the methodology changed. The sample result for monitoring wells 2 and 7 after the change is among the lowest detection since the inception of sampling. Concentrations appear to be below cleanup levels at the currently-sampled wells.

Nitrate concentrations still have a large amount of fluctuation. Using the Mann-Kendall statistical test, there is no observed decreasing trend. However, recent observed concentrations have been either near or below the cleanup level.

In the fifteen years since the cleanup action, improvements in water quality have been observed. The completed cleanup action has been effective in reducing the number of sampled contaminants and overall contaminant concentrations.

3.4 New scientific information for individual hazardous substances or mixtures present at the site

No new scientific information is available for chlordane or nitrate.

3.5 New applicable state and federal laws for hazardous substances present at the site

Since the time of the cleanup action, the MTCA (Ch 173-340 WAC) has been enacted and has gone through several amendments.

General major elements of cleanup actions completed under MTCA are:
- Evaluation and selection of the most stringent applicable cleanup levels;
- Evaluation of different cleanup alternatives and selection of an alternative that is protective of human health and the environment, implementable, permanent to the maximum extent practicable, and cost effective;
- Public reviews of documents and cleanup plans;
- Evaluation of potential risk to ecological receptors;
- Use of institutional controls if contaminants are left on-site above cleanup levels; and
- Provisions for compliance monitoring.

Current activities at the site generally meet the requirements of cleanup actions under MTCA as an applicable state law.
- Current cleanup levels for both chlordane and nitrate used at the site reflect the 1996 amendment of MTCA.
- Different cleanup action alternatives were roughly evaluated, and the selected action is protective of human health & the environment, and the action was implementable, permanent to the maximum extent practicable at the time (see Section 3.7), and cost effective.
- Public reviews did not take place; however, a notice of the availability of the review will be placed in Ecology's site register and a 30-day public comment period will take place.
- Institutional controls are in place.
- Compliance monitoring has been and continues to occur.

An element that was not addressed is the consideration of risk to ecological receptors. WAC 173-340-7491 presents four "exclusionary criteria." If a site meets any one of the four criteria, it does not need to undergo an ecological evaluation. This site meets the second exclusion, which is that all contaminated soils at a site are covered by buildings, pavement, or other barrier and an institutional control is in place. Therefore, an ecological risk assessment would not be applicable at the site.

No new federal laws are in place related to chlordane or nitrate. However, there are state and federal initiatives in place dealing with persistent bioaccumulative toxins (PBTs). Chlordane is considered a PBT. The goals of these initiatives are to reduce the use and availability of these chemicals. The cleanup action at the Co-op is consistent with these objectives.

3.6 CURRENT AND PROJECTED SITE AND RESOURCE USES

The site continues to be used as a pesticide storage and handling facility, and gas station. The facility's use of potentially contaminating materials (petroleum fuel, herbicides) is managed and undergoes periodic inspections by Ecology's Underground Storage Tank Program and Hazardous Waste Program. Use has not changed since the cleanup activities occurred; Ecology is not aware of any expected changes in property or resource use. However, with the growth of the community, the site is now located in an area that is undergoing development. The future potential does exist for a change in site use. In that case, the restrictive covenant would govern any future development.

3.7 THE AVAILABILITY AND PRACTICABILITY OF MORE PERMANENT REMEDIES

A "permanent" cleanup action is defined in MTCA as a cleanup action in which cleanup standards can be met without further action being required. The site currently meets groundwater cleanup standards at the conditional point of compliance (property boundary). However, chlordane still exceeds groundwater cleanup levels at wells located at the interior of the property. The actions already taken at the property can be considered permanent, however because contaminated soils remain and the potential exists for interior groundwater contamination to migrate off-site, other remedies will be considered here.

The asphalt cap provides acceptable protection for the direct contact pathways for human and ecological receptors. It also prevents the infiltration of rainwater from above. Nitrogen-containing pesticides, chlorinated herbicides, and nitrite concentrations have decreased with time to levels below the detection limits or cleanup criteria. However, concentrations of chlordane and nitrate persist in groundwater. This may mean that the residual concentration of chlordane in soils under the asphalt cap and buildings is high enough to cause it to continue to be present in groundwater. Groundwater can still move up from below and mobilize contamination.

A remedy that would resolve the persistent contaminants is the removal of soils contaminated with chlordane and disposal at a permitted landfill. These soils are likely present under the asphalt cap and under the perimeter of the building next to the asphalt cap. Removal of contaminated soils would eliminate the source of chlordane to groundwater, but would be difficult and costly to implement.

Biodegradation of chlordane is not expected to readily occur. Other technologies are available to remove chlordane from groundwater, including treatment or filtration. However, these technologies are not usually relied upon until source removal has occurred. Thus they will not be considered here.

In order to evaluate the feasibility of other remedial actions, the definition of "practicable" must be evaluated. MTCA defines practicable as "capable of being designed, constructed and implemented in a reliable and effective manner including consideration of cost." For a more expensive remedial action to be selected, its benefits must be greater than the additional costs. For this periodic review, the evaluation will be qualitative in nature.

The current remedial action remains protective for direct contact for humans and ecological receptors. It prevents erosion of potentially chlordane-contaminated soils. Although groundwater is impacted, no contaminated groundwater is currently leaving the site or impacting nearby surface water, nor are active drinking water wells affected.

If excavation and off-site disposal were considered, the following issues would be pertinent. In order to excavate and dispose of chlordane-contaminated soil, a review of Resource Conservation and Recovery Act (RCRA, 40 CFR Parts 260-279) rules needs to be completed to determine where the excavated soil can be disposed. Chlordane-contaminated soil is a listed U-coded hazardous waste, because it is a spill residue of a chemical with a hazardous characteristic (toxicity). As such, the soil could be incinerated or disposed of at a subtitle C landfill. If disposed of at a landfill, it would be subject to Land Disposal Restrictions (LDR, 40 CFR Part 268) and treatment may be required. Because there isn't any soil concentration data, it is unknown if treatment would be required. Treatment requirements may be lesser than those required by LDR if the wastes are Corrective Action Management Unit (CAMU)-eligible. Conservatively, it will be assumed that treatment would not be required and thus would present the least expensive alternative as compared to treatment/disposal and incineration.

The afore-mentioned soil removal actions would be very expensive. However, since contamination is currently not leaving the site, human and environmental receptors are protected from direct exposure, and deed restrictions are in place, the additional level of protection afforded by complete removal is not justified by the additional cost.

3.8 THE AVAILABILITY OF IMPROVED ANALYTICAL TECHNIQUES TO EVALUATE COMPLIANCE WITH CLEANUP LEVELS

Chlordane and nitrate are the two chemicals that remain contaminants of concern and for which groundwater samples are currently analyzed. Until 2000, groundwater samples were analyzed for chlordane using the technical chlordane method. When monitoring began in the early 1990s, the technical chlordane methodology was readily accepted and in use. However, the method had several deficiencies, including a high level of matrix interferences generating potentially high-biased results. In 2001, Ecology approved a request to switch to the alpha- and gamma-chlordane method, due to fewer interferences and its accepted use by the EPA. (see Appendix B for a complete discussion prepared by the laboratory)

No improved analytical techniques are available for nitrate.

4.0 CONCLUSIONS

Ecology has determined that the remedy at Walla Walla Farmers Co-op is generally protective of human health and the environment. Further soil cleanup may be necessary in the future if a land use change occurs or if the facility ceases/modifies operations. The measures that were taken for the original cleanup action remain protective today. Continued compliance monitoring ensures that contamination remaining in site soils and groundwater does not migrate off-site. The existence of institutional controls in the form of deed restrictions confirms that site uses will remain consistent with the presence of contamination. Further periodic reviews will be required as long as institutional controls are in place at the site, in accordance with WAC 173-340-420(7).

5.0 References Cited

Sweet-Edwards/EMCON, Inc., 1987, Walla Walla Farmers Co-op Hydrogeologic Investigation

Sweet-Edwards/EMCON, Inc., 1989, Walla Walla Farmers Co-op Phase II Hydrogeologic Investigation

Sweet-Edwards/EMCON, Inc., 1990, Walla Walla Farmers Co-op Remedial Action Workplan

Sweet-Edwards/EMCON, Inc., 1991, Walla Walla Farmers Co-op Drainfield Area Cleanup Plan

EMCON Northwest Inc., 1992, Walla Walla Farmers Co-op Ground Water Compliance Monitoring Plan

Washington State Department of Ecology, 1996, Model Toxics Cleanup Act Regulation Chapter 173-340 WAC

Washington State Department of Ecology, 2001, Model Toxics Cleanup Act Regulation Chapter 173-340 WAC

APPENDIX A

DEED RESTRICTION

12R

DECLARATION OF RESTRICTIVE ENVIRONMENTAL COVENANTS

9405398

Walla Walla Farmers Co-Op, Inc. is the owner (hereafter the "Owner") of the real property (hereafter the "Property") located in Walla Walla County, Washington described more particularly in Annex "A" and shown more specifically in Annex "B", both annexes being incorporated herein by this reference. The Property has been the subject of remedial action under chapter 70.105D RCW. Because hazardous substances have been left on the property using an "Industrial Soil" cleanup standard under WAC 173-340-745, this restrictive covenant is required by WAC 173-340-440.

The Owner does hereby declare the following limitations, restrictions, and uses to which the Property may be put, and specifies that such declarations shall constitute covenants to run with the land. These covenants shall be binding on the present fee owner, his/her successors and assigns, and any other future owner of any interest in the Property.

1. Those portions of the Property designated as Areas "A", "B", and "C" in Annex "B" may be used only for Industrial purposes as defined in and allowed under the City of Walla Walla Ordinance No. A3671 (Walla Walla Zone Code), enacted April 10, 1991, as of the date of this Restrictive Environmental Covenant.

2. The Owner of the Property must give written notice to the Washington State Department of Ecology (hereafter "Ecology"), or to a successor agency, of the Owner's intent to convey any interest in the Property. No conveyance of any interest in the Property shall be consumated by the Owner without adequate and complete provision for the continued operation, maintenance, and monitoring of the Ecology approved remedial action.

3. A portion of the Property designated as Area "A" in Annex "B" contains contaminated ground water. No ground water shall be used for any purpose from that portion of the property designated as Area "A" unless such withdrawl is reviewed and approved by Ecology after public notice and comment.

4. A portion of the Property designated as Area "B" in Annex "B" has pesticide contaminated soils. Such Area "B" has a clean soil cover and has been capped by an engineered asphalt pavement. No soils shall be removed or the area otherwise disturbed unless such action is reviewed and approved by Ecology after public notice and comment.

5. A portion of the Property designated as Area "C" in Annex "B" has petroleum contaminated soils. The major portion of Area "C" is presently beneath a shop building constructed on the premises. The contaminated soil shall not be removed or otherwise disturbed in Area "C" unless such action is reviewed and approved by Ecology after public notice and comment.

9405398

6. The Owner shall allow Ecology's authorized representatives the right to enter the Property at reasonable times for the purpose of evaluating compliance with the approved remedial actions, to take samples, to monitor remedial activities conducted at the site, and to inspect records which are related to to the approved remedial actions.

7. The Owner of the Property and the Owner's assigns and successors in interest have the right at all times under WAC 173-340-440, -740, and -745, as amended or replaced, to record an instrument which provides that this Restrictive Environmental Covenant shall no longer limit use of the Property or be of any further force or effect, provided, that any instrument which eliminates the force or effect of this Restrictive Environmental Covenant may be recorded only with the concurrence of Ecology, or a successor agency, which may concur only after public notice and comment.

DATED this 5th day of May, 1994.

WALLA WALLA FARMERS CO-OP, INC.

By: Edward M Meliah

Edward M. Meliah
Secretary/Treasurer

STATE OF WASHINGTON)
ss:
County of Walla Walla)

On this 5th day of May, 1994 before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared EDWARD M. MELIACH to me known to be the Secretary/Treasurer, of WALLA WALLA FARMERS CO-OP, INC., and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year first above written.

DIANA CANTY PIERCE
COMMISSION EXPIRES
NOTARY
PUBLIC
OCT. 15, 1997
STATE OF WASHINGTON

Diana Canty Pierce

Notary Public in and for the State of Washington, residing at Walla Walla.

WALLA WALLA FARMERS CO-OP LEGAL DESCRIPTION

Parcel 1:

A PARCEL OF LAND IN THE SOUTHEAST 1/4 AND SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 19 AND THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 30, TOWNSHIP 7 NORTH, RANGE 36 EAST, WILLAMETTE MERIDIAN, WALLA WALLA COUNTY, WASHINGTON, SAID PARCEL BEING DESCRIBED MORE PARTICULARLY AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY LINE OF WEST ROSE STREET THAT IS 10.00 FEET EASTERLY, AS MEASURED ALONG SAID NORTHERLY LINE OF WEST ROSE STREET, FROM THE WESTERLY LINE OF VACATED 10TH AVENUE NORTH, AS SHOWN ON THE PLAT OF REESE'S ADDITION, FILED IN VOLUME A OF PLATS AT PAGE 13, WALLA WALLA COUNTY BOOK OF PLATS;

THENCE N58°38'01"E 370.13 FEET ALONG SAID NORTHERLY LINE OF WEST ROSE STREET TO THE INTERSECTION OF SAID NORTHERLY LINE OF WEST ROSE STREET WITH THE WESTERLY LINE OF 9TH AVENUE, FORMERLY MULLAN AVENUE;

THENCE N31°21'16"W 99.02 FEET ALONG SAID WESTERLY LINE OF 9TH AVENUE TO THE BEGINNING OF A CURVE TO THE RIGHT, TO WHICH A RADIAL LINE BEARS S58°38'44"W 995.00 FEET;

THENCE CONTINUING NORTHERLY ON SAID WESTERLY LINE OF 9TH AVENUE ALONG SAID CURVE 519.29 FEET TO A POINT TO WHICH A RADIAL LINE BEARS S88°32'53"W 995.00 FEET;

THENCE N1°27'07"W 19.11 FEET ALONG SAID WESTERLY LINE OF 9TH AVENUE TO THE NORTHEASTERLY CORNER OF THAT PARCEL DESCRIBED IN VOLUME 80, INSTRUMENT NO. 7803420, WALLA WALLA COUNTY BOOK OF DEEDS;

THENCE S76°46'39"W 159.50 FEET ALONG THE NORTHERLY LINE OF SAID PARCEL DESCRIBED IN VOLUME 80, INSTRUMENT NO. 7803420;

THENCE S55°00'39"W 356.00 FEET ALONG THE NORTHERLY LINE OF THOSE PARCELS DESCRIBED IN VOLUME 80, INSTRUMENT NO. 7803420 AND VOLUME 264, INSTRUMENT NO. 362438, WALLA WALLA COUNTY BOOK OF DEEDS;

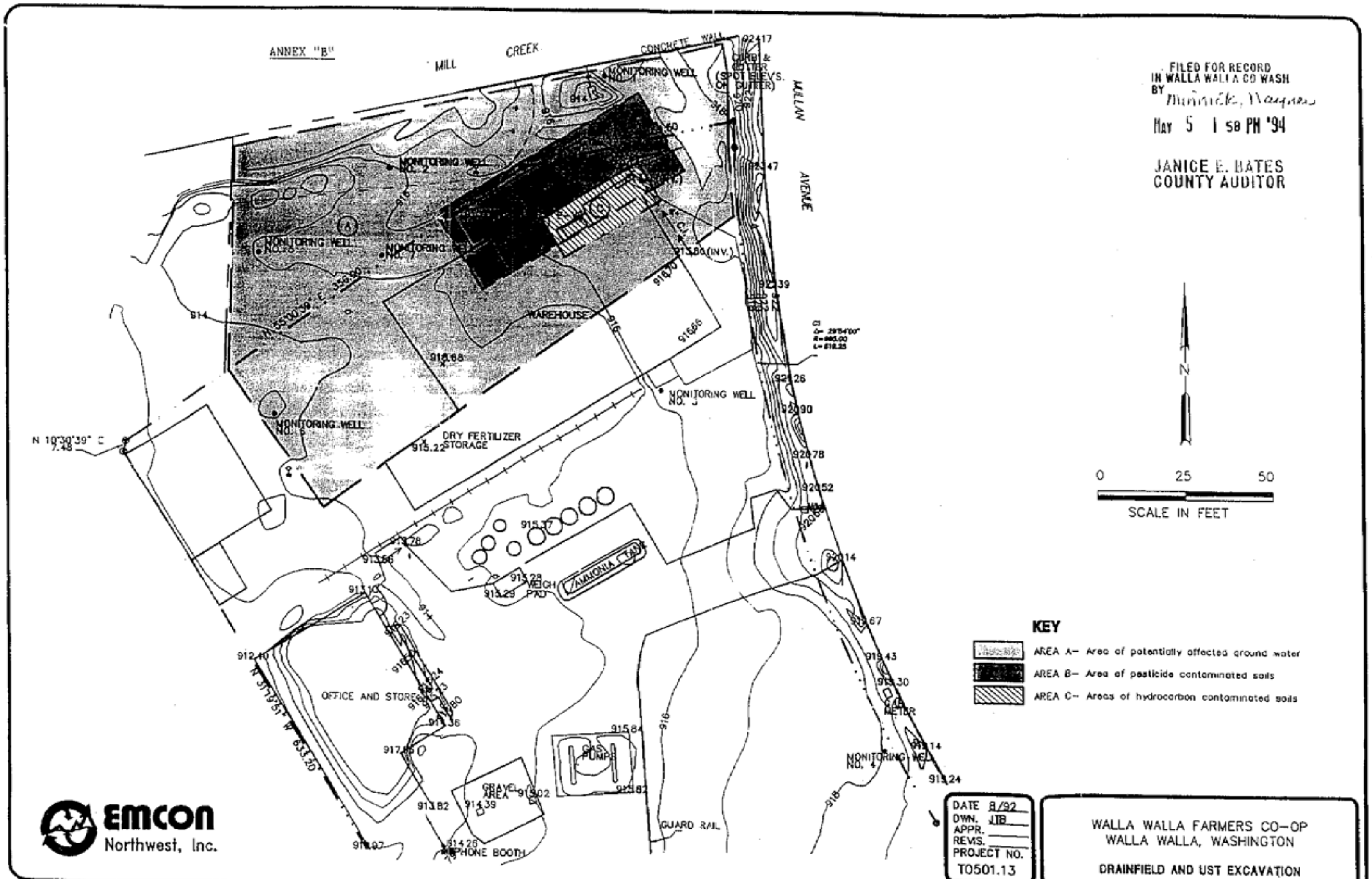
THENCE S10°30'39"W 7.48 FEET;

THENCE S31°19'51"E 633.20 FEET ALONG THE WESTERLY LINE OF SAID PARCEL DESCRIBED IN VOLUME 264, INSTRUMENT NO. 362438 TO THE POINT OF BEGINNING FOR THIS LEGAL DESCRIPTION.

Parcel 2

A tract of land in the South half of the Southeast Quarter of Section 19 Township 7 North Range 36 East of the Willamette Meridian, Walla Walla County, Washington said tract being described more particularly as follows:

Commencing at the Northwest corner of said southeast Quarter of Section 19, thence South 01°24'04" East 2662.45 feet along the West line of said Southeast Quarter of Section 19 to the Southwesterly corner thereof; Thence North 69°30'01" East 1235.51 feet to a point on the Easterly line of that parcel described at Auditor's File Number 537816; thence along said Easterly line by the following courses: North 10°30'39" East 7.48 feet; North 55°00'39" East 93.00 feet to the true point of beginning for this legal description; thence departing said East line and running North 01°27'07" West 118.74 feet to a point on the Southerly right of way line of the Mill Creek Flood Control District, said point being on a curve concave to the North having a radius of 1617.10 feet; thence Easterly along the South right of way line of the Mill Creek Flood Control District following said curve a distance of 188.33 feet, the chord of said curve following a bearing of North 81°07'40" East for a distance of 188.22 feet to the beginning of a non-tangent curve concave to the Northwest having a radius of 60.00 feet; thence Northeasterly along said curve a distance of 94.24 feet, the chord of said curve following a bearing of North 31°58'54" East for a distance of 84.85 feet; thence North 77°53'50" East 144.43 feet to the intersection of said South right of way line of the Mill Creek Flood Control District with the West right of way line of Mullan Avenue; thence South 01°27'07" East 62.73 feet along said West right of way line to the intersection of said West right of way line with the East line of that parcel described at Auditor's File Number 537816; thence South 76°46'39" West 159.50 feet along said East line; thence South 55°00'39" West 262.97 feet along said East line; to the true point of beginning for this legal description.


ANNEX "B"
MILL CREEK
CONCRETE WALL
MULLAN AVENUE
MONITORING WELL NO. 1
MONITORING WELL NO. 3
MONITORING WELL NO. 4
MONITORING WELL NO. 5
MONITORING WELL NO. 6
MONITORING WELL NO. 7
WAREHOUSE
DRY FERTILIZER STORAGE
AMMONIA TANK
WEIGH PAD
OFFICE AND STORE
GRAVEL AREA
PHONE BOOTH
GAS PUMPS
GUARD RAIL
GAS METER
N
0 25 50
SCALE IN FEET
KEY
AREA A– Area of potentially affected ground water
AREA B– Area of pesticide contaminated soils
AREA C– Areas of hydrocarbon contaminated soils
FILED FOR RECORD IN WALLA WALLA CO WASH
BY Minnick, Hayner
MAY 5 1 58 PM '94
JANICE E. BATES COUNTY AUDITOR
DATE 8/92
DWN. JTB
APPR.
REVS.
PROJECT NO. T0501.13
WALLA WALLA FARMERS CO-OP
WALLA WALLA, WASHINGTON
DRAINFIELD AND UST EXCAVATION
EMCON Northwest, Inc.
WAL08

APPENDIX B

CHLORDANE ANALYSIS EVALUATION BY THE LABORATORY

RECEIVED

MAR 11 2003

LANDAU ASSOCIATES, INC.
SPOKANE

Columbia Analytical Services INC.
An Employee-Owned Company

March 6, 2003

Craig Schwyn
Landau Associates, Inc.
Peyton Building
10 North Post Street, Suite 218
Spokane, WA 99201

Subject: Chlordane Evaluation for Walla Walla Farmers Co-op, Inc

Dear Craig,

CAS has been asked to review the pesticide data relative to the Walla Walla Farmers Co-op, Inc. by the Washington Department of Ecology (WDOE). As Landau Associates, Inc., representing the Walla Walla Farmers Co-op, Inc. is the authorized owners of the analytical data, this review is being provide to you.

The technical staff and I have reviewed pesticide sample results for samples collected from 11/27/00 through 10/30/02. The reviewed data sets consist of 5 sampling rounds, referred to CAS Service Request numbers: K2009180, K2103423, K2108552, K2203409, K2207788. The results were reported as Technical Chlordane in K2009180, and as alpha- and gamma-Chlordane for the rest of the reports. The change from Technical Chlordane to alpha- and gamma-Chlordane was requested by CAS and approved by WDOE, due to the matrix interferences experienced with the Technical Chlordane analysis, and the more accurate and EPA accepted use of alpha- and gamma-Chlordane. The monitoring of Technical Chlordane was started at the site in 1991 (or before), prior to the common use of the alpha- and gamma-Chlordane analysis by the analytical community.

In the K2009180 sampling round, Technical Chlordane was detected in 3 samples - MW5, MW7, and MW2. Only MW5 was sampled in the later sampling events. The summarized actual detections for MW-5 are found in the following table:

Lab ID	Collection Date	Actual Detection (ug/L)
K2009180-003	11/27/00	Chlordane = 0.5
K2103423-003	05/14/01	Alpha = 0.01J, gamma = 0.01J
K2108552-004	11/14/01	Alpha = 0.014J, gamma < MDL (0.0081)
K2203409-003	05/23/02	Alpha = 0.017, gamma < MDL (0.0076)
K2207788-003	10/30/02	Alpha < MDL (0.0075), gamma < MDL (0.0061)

1317 South 13th Avenue • P.O Box 479 • Kelso, Washington 98626 • Telephone 360/ 577-7222 • Fax 360/636-1068

I have also included the raw data including chromatograms for the samples listed above in an attached .pdf file. Alpha- and gamma-Chlordane were periodically detected in this monitoring well in year 2001 and 2002 sampling rounds, but are always below the 0.05 ug/L reporting limit. As shown in the chromatograms, the background matrix of samples collected from this well fluctuated significantly, as far as the fingerprint of non-target compound interferences and the levels of response to the ECD.

CAS reviewed the raw data and all associated QA/QC from a technical perspective, comparing the data to EPA Method 8081A and the associated CAS Standard Operating Procedure (SOP). The senior technical staff independently confirmed the water samples had been properly extracted, cleaned up and analyzed. Method blanks, surrogates, laboratory control samples and surrogates met the method criteria and demonstrated the Chlordane analysis was under control. The differences visually observed between chromatograms from different sampling events seem to be due to changes in the sample matrix.

The difference between the earlier Technical Chlordane values and subsequent alpha- and gamma- Chlordane analyses might indicate that the earlier Technical Chlordane values might have been potentially biased high. However, this cannot be positively confirmed without specific confirmation tests that must be performed during the analysis and is just supposition on my part. When evaluating a multi-peak mixture such as Technical Chlordane, small changes in background matrices can often have profound impact on reported analyte concentrations as analyte concentrations are calculated using the summed peak area from multiple chromatographic peaks. Thus, interferences can positively bias sample concentrations, especially for multi-component mixtures. This is the reason that EPA recommended to analyze alpha- and gamma- Chlordane in EPA Method 8081A and EPA Contract Laboratory Program (CLP) contracts used for environmental enforcement.

If you have any questions, or if I can be off assistance in any way, please feel free to contact me at (206) 824-8933 or via email at jhicks@caslab.com.

Sincerely,

John A. Hicks
Senior Chemist
Columbia Analytical Services

cc: enclosures- Sample Chromatograms

Quantitation Report

```
Signal #1 : J:\GC14\DATA\120700\1207F017.D                 Vial: 16
Signal #2 : J:\GC14\DATA\120700\1207F017.D\1207R017.D
Acq On    : 08 Dec 00  04:45 AM                         Operator: LJones
Sample    : K2009180-003 | MW5-112700                   Inst    : GC14
Misc      : SVG\8081\09180003.H | F=2 D=1 A=980         Multiplr: 1.00
Quant Time: Dec  8  8:28 19100

Method        : J:\GC14\METHODS\1207CHL.M
Title         : Chlordane
Last Update   : Fri Dec 08 08:19:41 2000
Response via  : Single Level Calibration

Volume Inj.      : 1uL
Signal #1 Phase : RTx-5              Signal #2 Phase: RTx-1701
Signal #1 Info  : 0.53               Signal #2 Info : 0.53
```

For surr only

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
					TV 100 ug/L	
System Monitoring Compounds						
1) S TCMX	9.81	9.01	65303	92729	67.555	75.300%
7) S DCB	30.82	29.60	44461	62072	49.384	51.059%
Target Compounds						
2) L1 Chlordane	0.00	12.66	0	233506	N.D.	5838.146 #
3) L1 Chlordane {2}	13.29	0.00	593681	0	24934.557	N.D. #
4) L1 Chlordane {3}	17.33	17.63	11088	10552	112.394	78.646 #
5) L1 Chlordane {4}	17.90	17.89	11367	16264	133.208	162.344
6) L1 Chlordane {5}	0.00	18.00	0	11889	N.D.	101.353 #
Total Chlordane			616136	272211	25180.160	6180.490
Average Chlordane					8393.387	1545.122

Matrix Interference
See further clean-up

LJ 12-8-00

JN 12/10/00

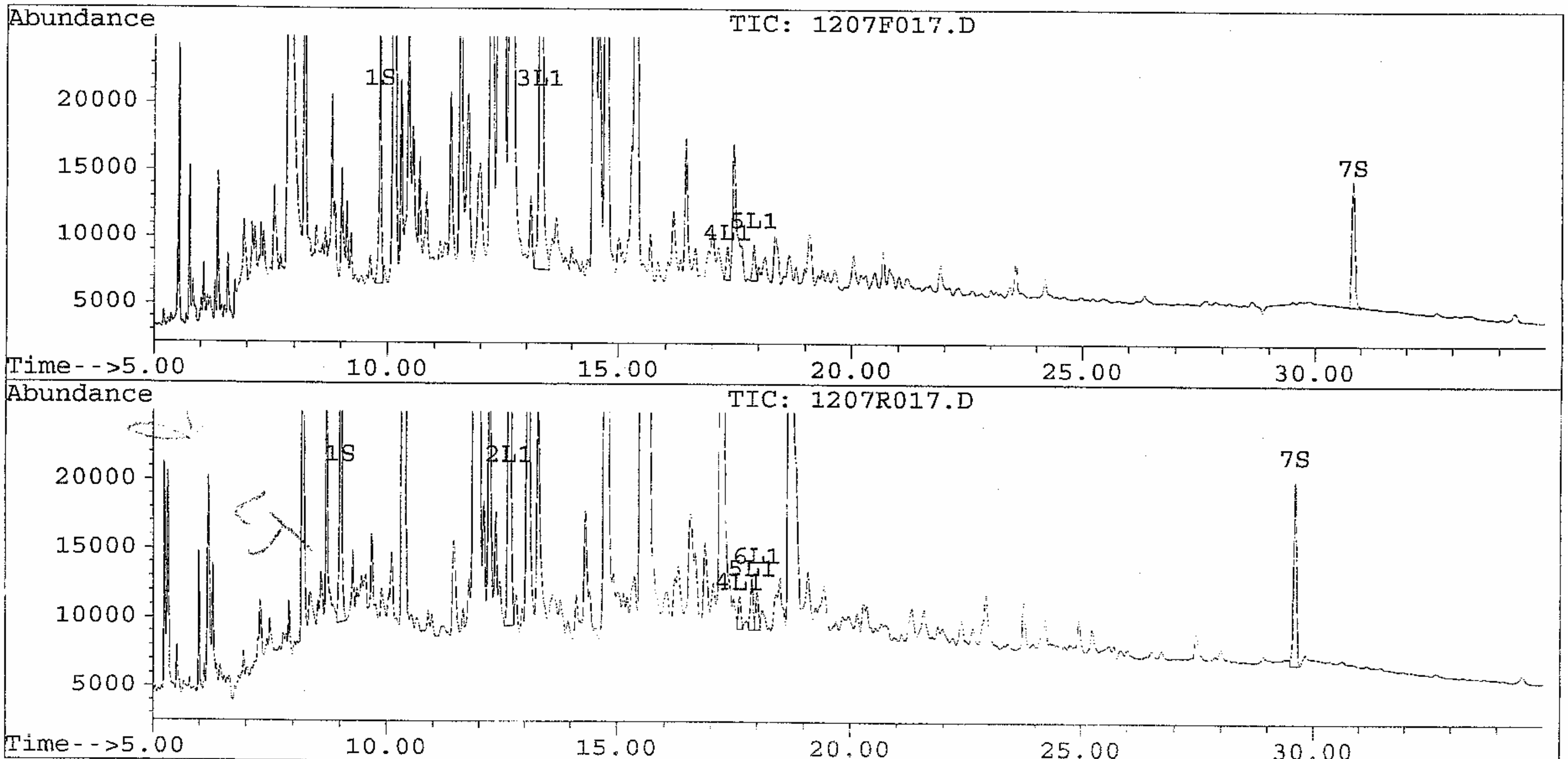
Quantitation Report

Signal #1 : J:\GC14\DATA\120700\1207F017.D   Vial: 16
Signal #2 : J:\GC14\DATA\120700\1207F017.D\1207R017.D
Acq On : 08 Dec 00 04:45 AM   Operator: LJones
Sample : K2009180-003 | MW5-112700   Inst : GC14
Misc : SVG\8081\09180003.H | F=2 D=1 A=980   Multiplr: 1.00
Quant Time: Dec 8 8:28 19100

~~Chlordane = 0.5 ug/L~~
Before Cleanup.

Method : J:\GC14\METHODS\1207CHL.M
Title : Chlordane
Last Update : Fri Dec 08 08:19:41 2000
Response via : Single Level Calibration

Volume Inj. : 1uL
Signal #1 Phase : RTx-5   Signal #2 Phase: RTx-1701
Signal #1 Info : 0.53   Signal #2 Info : 0.53



Quantitation Report

```
Signal #1 : J:\GC14\DATA\120800\1208F055.D                Vial: 38
Signal #2 : J:\GC14\DATA\120800\1208F055.D\1208R055.D
Acq On    : 10 Dec 00   05:20 AM                          Operator: LJones
Sample    : K2009180-003R | MW5-112700                    Inst    : GC14
Misc      : SVG\8081\09180003.H | F=2 D=1 A=980           Multiplr: 1.00
Quant Time: Dec 11  8:11 19100

Method          : J:\GC14\METHODS\1207CHL.M
Title           : Chlordane
Last Update     : Fri Dec 08 07:35:32 2000
Response via    : Single Level Calibration

Volume Inj.        : 1uL
Signal #1 Phase : RTx-5              Signal #2 Phase: RTx-1701
Signal #1 Info  : 0.53               Signal #2 Info : 0.53
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
1) S	TCMX	9.80	9.01	81413	101220	NoCal	NoCal
7) S	DCB	30.80	29.59	50770	68080	NoCal	NoCal
	Target Compounds						
2) L1	Chlordane	10.02	12.67	717	28894	66.778	722.411 #
3) L1	Chlordane {2}	13.27	13.18	12807	2446	537.893	39.254 #
4) L1	Chlordane {3}	17.32	17.62	9610	11662	97.413	86.919
5) L1	Chlordane {4}	17.88	17.88	15553	17779	182.264	177.467
6) L1	Chlordane {5}	0.00	17.99	0	15911	N.D.	135.641 #
Total	Chlordane			38687	76692	884.347	1161.692
Average	Chlordane					221.087	232.338
						0.45 ug/L	0.47 ug/L

LJ 12-11-00

[illegible] 12/12/00

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report

Signal #1 : J:\GC14\DATA\120800\1208F055.D
Signal #2 : J:\GC14\DATA\120800\1208F055.D\1208R055.D
Acq On : 10 Dec 00 05:20 AM
Sample : K2009180-003R | MW5-112700
Misc : SVG\8081\09180003.H | F=2 D=1 A=980
Quant Time: Dec 11 8:11 19100

Vial: 38
Operator: LJones
Inst : GC14
Multiplr: 1.00

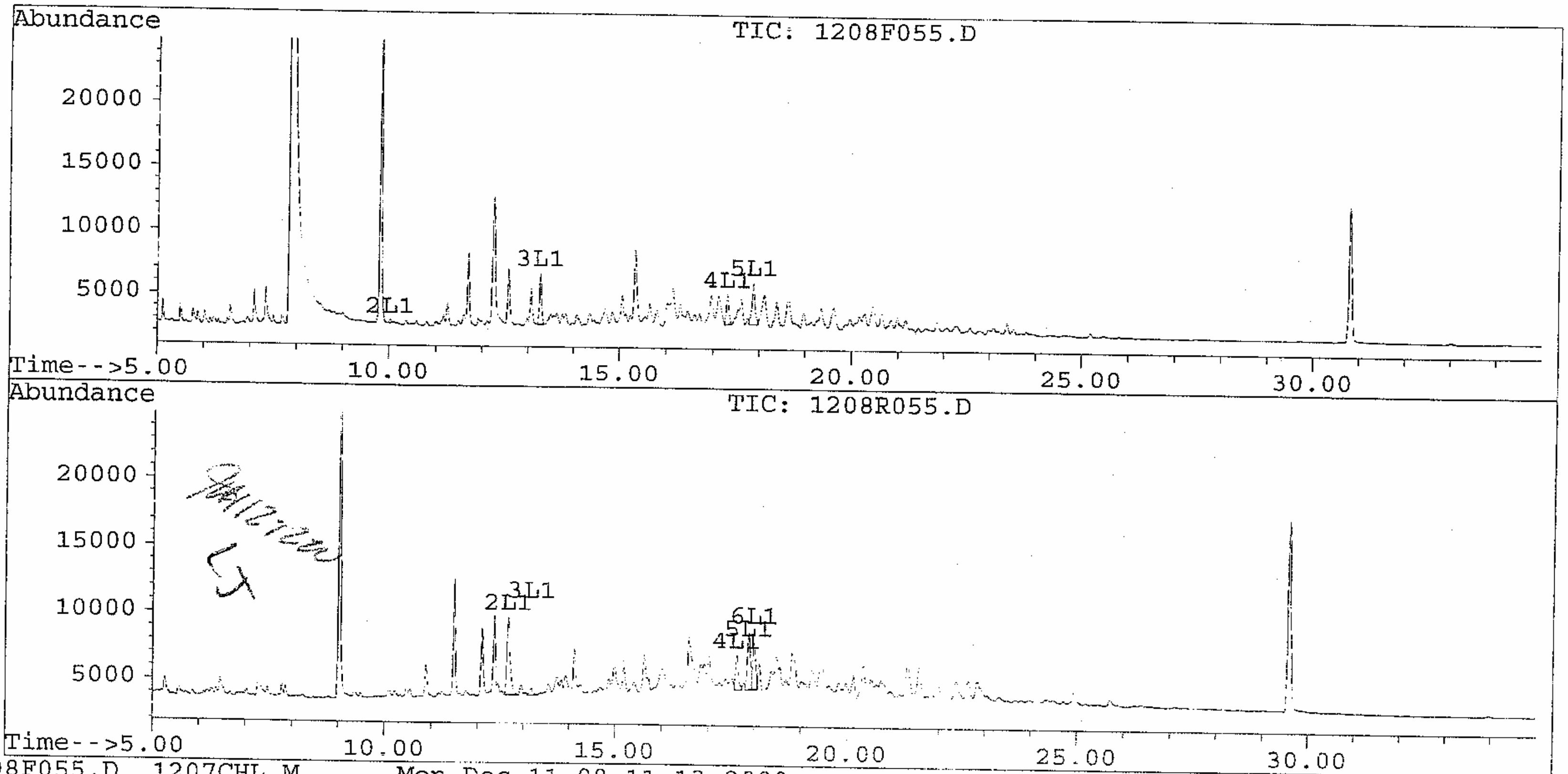
Method : J:\GC14\METHODS\1207CHL.M
Title : Chlordane
Last Update : Fri Dec 08 07:35:32 2000
Response via : Single Level Calibration

After Cleanup

Chlordane = 0.5 ug/L

Volume Inj. : 1uL
Signal #1 Phase : RTx-5
Signal #1 Info : 0.53

Signal #2 Phase: RTx-1701
Signal #2 Info : 0.53



1208F055.D 1207CHL.M Mon Dec 11 08:11:13 2000

Quantitation Report

Signal #1 : J:\GC14\DATA\053001\0530F024.D Vial: 19
Signal #2 : J:\GC14\DATA\053001\0530F024.D\0530R024.D
Acq On : 31 May 01 02:40 PM Operator: JHeston
Sample : K2103423-003 | MW5-051401 Inst : GC14
Misc : SVG\8081\03423003.H | F=2 D=1 A=1040 Multiplr: 1.00
Quant Time: May 31 16:34 19101

Method : J:\GC14\METHODS\05218081.M
Title : 8081 + 2,4-DDT, DDD, DDE
Last Update : Thu May 31 08:52:57 2001
Response via : Multiple Level Calibration

Volume Inj. : 1uL
Signal #1 Phase : RTX-5, 0.32mm i.d Signal #2 Phase: RTX-1701, 0.32 mm id
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
1) S	Tetrachloro-m-xylen	8.68	8.42	374914	515986	64.368	63.447
				Recovery	=	64.37%	63.45%
22) S	Decachlorobiphenyl	24.09	23.72	276660	334356	44.018	41.728m
				Recovery	=	44.02%	41.73%
	Target Compounds						
4)	gamma-BHC(Lindane)	10.28	11.36	13292	28736	4.331	5.621 #
6)	Heptachlor	12.00	11.94	6564	143688	1.154	17.975 #
9)	gamma-Chlordane	14.59	15.39	29328	42100	4.748	4.975
11)	alpha-Chlordane	15.01	15.57	26760	47660	4.148	5.634 #
12)	Dieldrin	15.66	16.20	26132	36182	5.091	5.008
14)	Endrin	16.27	16.75f	23258	11986	5.222	1.886m#
15)	Endosulfan II	16.51	18.09	4430	38194	0.917	4.896 #
16)	4,4'-DDD	16.72	18.09f	3024	38194	0.843	10.053 #
17)	Endrin Aldehyde	17.01f	19.17f	11630	30962	3.284	4.723 #
18)	Endosulfan Sulfate	17.68f	20.08f	21734	23194	6.232	4.203 #
20)	Endrin Ketone	19.05	21.20	10414	9754	2.008	1.459 #

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report

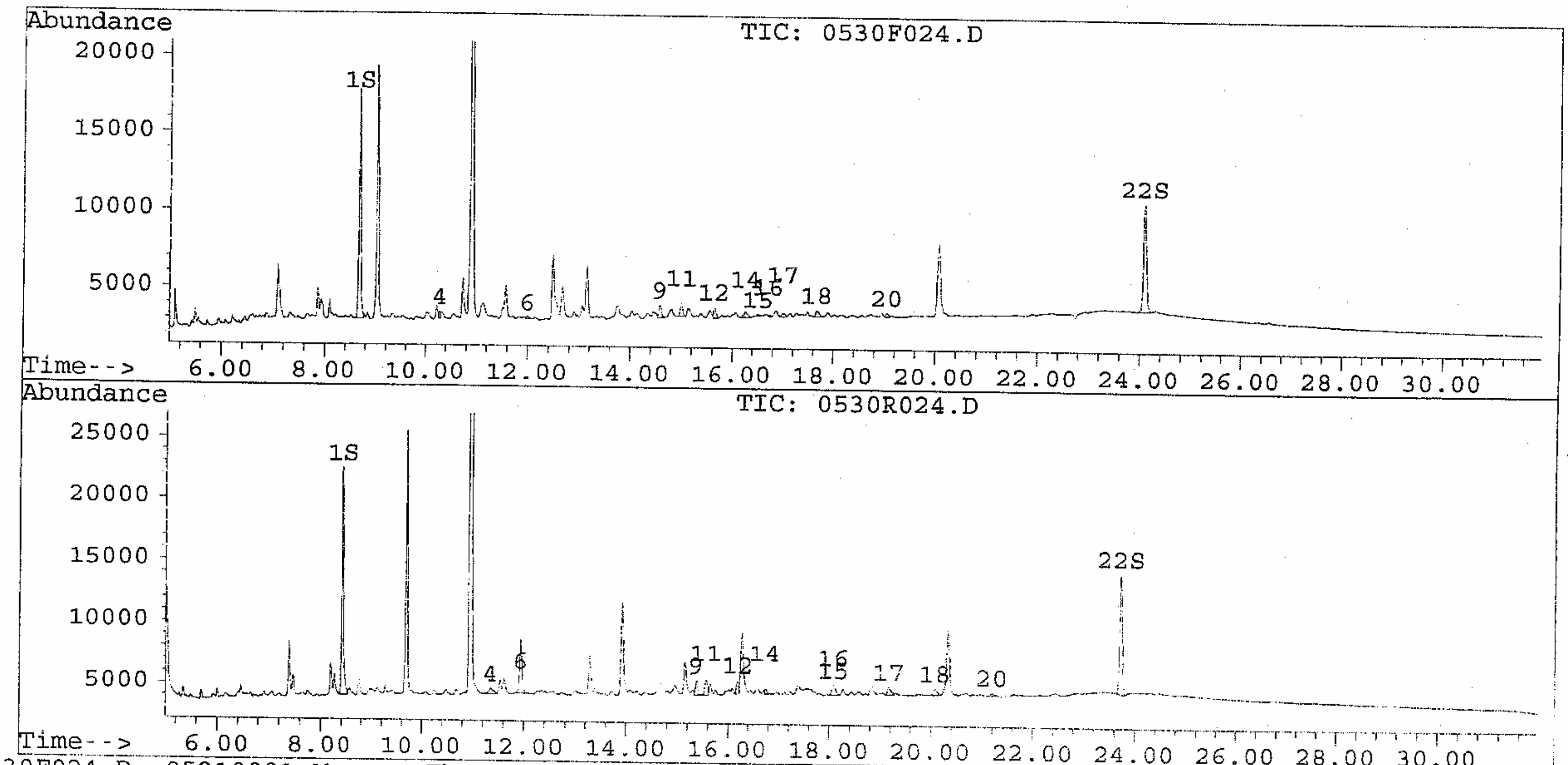
```
Signal #1  : J:\GC14\DATA\053001\0530F024.D                     Vial: 19
Signal #2  : J:\GC14\DATA\053001\0530F024.D\0530R024.D
Acq On     : 31 May 01  02:40 PM                           Operator: JHeston
Sample     : K2103423-003 | MW5-051401                     Inst    : GC14
Misc       : SVG\8081\03423003.H | F=2 D=1 A=1040          Multiplr: 1.00
Quant Time: May 31 16:34 19101

Method        : J:\GC14\METHODS\05218081.M
Title         : 8081 + 2,4-DDT, DDD, DDE
Last Update   : Thu May 31 08:52:57 2001
Response via  : Multiple Level Calibration

Volume Inj.       : 1uL
Signal #1 Phase  : RTX-5, 0.32mm i.d Signal #2 Phase: RTX-1701, 0.32 mm id
Signal #1 Info   :                   Signal #2 Info :
```

(0.01 J) α-Chlordane < 0.05 µg/L

(0.01 J) γ-Chlordane < 0.05 µg/L



Quantitation Report

```
Signal #1  : J:\GC14\DATA\121201\1212F032.D                 Vial: 30
Signal #2  : J:\GC14\DATA\121201\1212F032.D\1212R032.D
Acq On     : 13 Dec 01   06:37 AM                           Operator: MManthe
Sample     : K2108552-004 | MW5-111401                      Inst     : GC14
Misc       : SVG\8081\08552004.H | F=2 D=1 A=1000           Multiplr: 1.00
Quant Time: Dec 13 11:31 19101

Method           : J:\GC14\METHODS\12068081.M
Title            : 8081 + 2,4-DDT, DDD, DDE
Last Update      : Thu Dec 13 10:01:29 2001
Response via     : Multiple Level Calibration

Volume Inj.        : 1uL
Signal #1 Phase : DB-35MS, 0.32mm i Signal #2 Phase: DB-XLB, 0.32 mm id
Signal #1 Info   :                  Signal #2 Info :
```

		Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB	
		System Monitoring Compounds							
1)	S	Tetrachloro-m-xylen	8.35	9.56	472474	809254	51.584	60.922	
					Recovery	=	51.58%	60.92%	
24)	S	Decachlorobiphenyl	16.00	17.06	492712	889052	60.355	72.520	
					Recovery	=	60.35%	72.52%	
		Target Compounds							
2)		alpha-BHC	9.29	10.25f	62286	542802	5.917	39.954	#
3)		Hexachlorobenzene	9.13	10.32	905540	1985914	89.117	131.221	#
4)		beta-BHC	10.24	11.12	471364	3080126	84.378	381.316	#
5)		gamma-BHC(Lindane)	9.86	10.76f	270658	28576148	27.812	2191.459	#
7)		Heptachlor	10.42	11.58	12652	78024	1.339	4.997	#
9)		Isodrin	11.42	12.49	2469174	18664	327.802	1.670	#
10)		Heptachlor Epoxide	11.63	12.63	84140	237164	9.624	17.608	#
11)		gamma-Chlordane	11.91	13.08	58000	95156	6.381	7.191	
12)		Endosulfan I	12.10	13.22	130092	65580	15.874	5.148	#
13)		alpha-Chlordane	12.05	13.15	35500	250282	4.028	18.991	#
14)		Dieldrin	12.49	13.53	103052	403532	13.118	34.336	#
15)		4,4'-DDE	12.35	13.34	21140	345856	2.865	31.304	#
16)		Endrin	12.95f	13.83	45210	124960	6.445	12.485	#
17)		Endosulfan II	13.28f	14.19	124016	89954	16.316	8.232	#
18)		4,4'-DDD	13.12f	14.01	203714	202404	32.464	22.985	#
19)		Endrin Aldehyde	13.53	14.30f	22764	415634	3.415	43.202	#
20)		Endosulfan Sulfate	13.79	14.76f	109200	41216	14.785	3.907	#
21)		4,4'-DDT	13.45	14.48f	47036	142480	7.629	15.593	#
22)		Endrin Ketone	14.54	15.30f	73470	168994	8.790	14.433	#
23)		Methoxychlor	14.31	14.97f	31516	52120	7.475	7.973	

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report

Signal #1 : J:\GC14\DATA\121201\1212F032.D
Signal #2 : J:\GC14\DATA\121201\1212F032.D\1212R032.D
Acq On : 13 Dec 01 06:37 AM
Sample : K2108552-004 | MW5-111401
Misc : SVG\8081\08552004.H | F=2 D=1 A=1000
Quant Time: Dec 13 11:31 19101

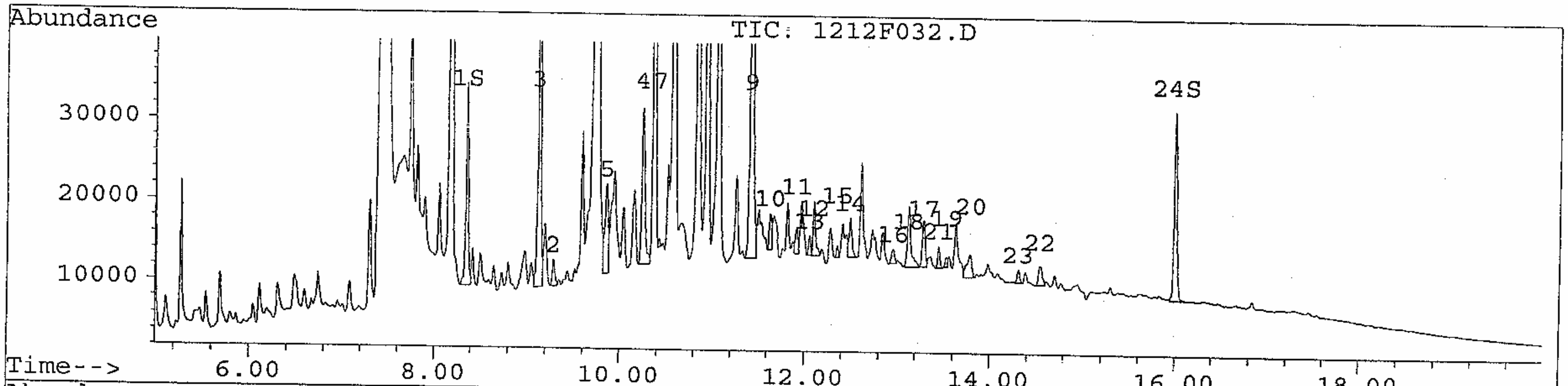
Vial: 30

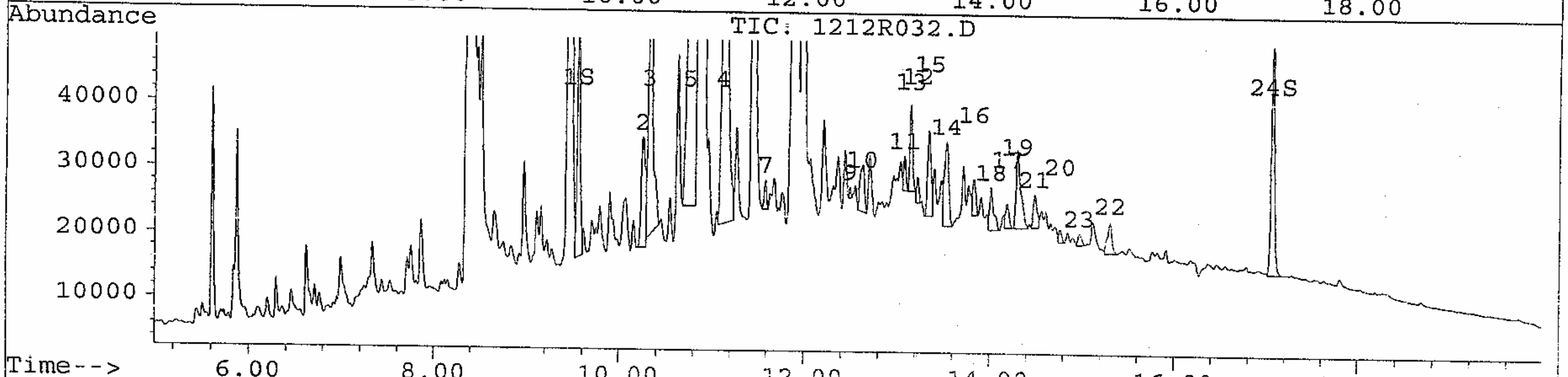
Operator: MManthe
Inst : GC14
Multiplr: 1.00

Method : J:\GC14\METHODS\12068081.M
Title : 8081 + 2,4-DDT, DDD, DDE
Last Update : Thu Dec 13 10:01:29 2001
Response via : Multiple Level Calibration

(0.014 J) α-Chlordane < 0.05 µg/L
(0.0081 < MDL) γ-Chlordane < 0.05 µg/L

Volume Inj. : 1uL
Signal #1 Phase : DB-35MS, 0.32mm i Signal #2 Phase: DB-XLB, 0.32 mm id
Signal #1 Info : Signal #2 Info :





1212F032.D 12068081.M Thu Dec 13 11:41:27 2001