

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0031

WASTE DISCHARGE REQUIREMENTS
FOR
CHEMURGIC AGRICULTURAL CHEMICALS, INC.
GROUNDWATER TREATMENT SYSTEM
STANISLAUS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

Chemurgic Agricultural Chemicals, Inc. (hereafter Chemurgic or Discharger) submitted a Report of Waste Discharge (RWD) dated 6 October 2005 for revising Waste Discharge Requirements (WDR) for Chemurgic's on-site groundwater treatment system at 3106 South Faith Home Road (Site) in Turlock. Chemurgic owns and operates a 22.8-acre fertilizer formulating and pesticide retail facility at the Site. The Site is in the southwest 1/4 of Section 30, T5S, R10E, MDB&M, 37°27'52.6"N latitude, 120°55'6.9"W longitude with surface water drainage to the San Joaquin River, as shown in Attachment A, which is attached hereto and made part of these Waste Discharge Requirements, hereafter referred to as Order, by reference.

This Order represents a revision to WDR Order No. 5-00-067, adopted by the Regional Board on 17 March 2000, which prescribed requirements for the Discharger's groundwater extraction, treatment, and infiltration system. The previous Order is no longer adequate because the Discharger needed to destroy and relocate an extraction well, a monitoring well, and the infiltration trench in order to construct an on-site warehouse. These new WDRs reflect a change to the points of extraction and discharge. The groundwater extraction system has been off-line since the warehouse construction activities began in April 2005. The new location of the groundwater treatment facility, discharge points, and monitoring well network are shown on Attachments B and C, which are attached hereto and made part of this Order by reference.

BACKGROUND

1. The Chemurgic facility occupies a former U.S. government site that was originally developed for defense production during the early 1940s. Investigations conducted between 1982 and 1986 found chlorobenzenes, BHC isomers, DDT and its metabolites in soil and groundwater samples obtained from the Discharger's property. The primary source is an old BHC formulation area of the Discharger's property with a secondary source in the southern portion of the property. All of the chemicals listed above are associated with past uses of the property or are breakdown products.

2. In 1995, the Discharger submitted to the Board an integrated cleanup plan that featured soil treatment by thermal desorption and a follow-up groundwater extraction and treatment system. The soil treatment program was completed in the fall of 1995, removing an estimated 95 percent of the source chemicals onsite.
3. To remove benzene hexachloride and DDT isomers, the Discharger operates a groundwater extraction system with carbon adsorption treatment vessels and discharge to an infiltration trench within the capture zone of the extraction well. This groundwater treatment system had been operating from 1997 until extraction was suspended in April 2005 pending completion of on-site construction activities and adoption of revised Waste Discharge Requirements. The groundwater treatment system is the final phase of the soil and groundwater remediation plan required by Cleanup and Abatement Order No. 93-715.
4. In 1997, Waste Discharge Requirements Order No.97-126 were adopted for the discharge of the treated groundwater. In 2000, an expansion of the treatment system necessitated a revision of the WDR, Order No. 5-00-067. Polluted groundwater is withdrawn from two extraction wells with a combined design capacity of 10 gallons per minute. The groundwater is treated in three 1,000-pound granulated activated carbon vessels with discharge to an infiltration gallery upgradient of and within the capture zone of the extraction wells. A shrinking groundwater pollution plume and a long operational history led to the 21 May 2004 revision of the Monitoring and Reporting Program, (Monitoring and Reporting Program No. 5-00-067 Revision 1), which reduced the monitoring scope and frequency. The new Monitoring and Reporting Program does not require that Chemurgic sample treatment plant effluent for DDT isomers, since they have not been detected in groundwater and were removed from the groundwater monitoring program in 2000. In regards to other monitored constituents and reporting frequency, the new MRP is identical to the previous MRP.

REVISED REMEDIATION PROJECT

5. These WDRs consist of the following changes from the previous WDRs: Extraction well EW-2 and proximate monitoring well MW-507 were removed and relocated about 50 feet downgradient (renamed EW-2A and MW-507A), and the infiltration gallery was removed and relocated about 100 feet upgradient, as illustrated on Attachment C.
6. The Discharger destroyed extraction well EW-2 and monitoring well MW-507 in April 2005 under the oversight of Stanislaus County Department of Environmental Resources. At that time the infiltration gallery was also destroyed. In May 2005, replacement extraction well EW-2A and monitoring well MW-507A, and the new infiltration gallery were installed as documented in the June 2005 *Well Installation Report* prepared by Conestoga-Rovers and

Associates. The new infiltration gallery was constructed three feet wide, three feet deep, and about 70 feet long, per the plans and specifications for the original gallery.

7. The Discharger conducted a pump test in August 2005 verifying that the new infiltration gallery is within the capture zone of the relocated and the existing extraction well. This is documented in the 19 August 2005 *Pilot Pumping Test Results* prepared by Paul V. Sundberg, Project Consultant.
8. The primary constituent of concern is gamma-benzene hexachloride (g-BHC), also known as Lindane, and its isomers alpha-, beta- and delta-benzene hexachloride. As reported in the 2004 Annual Report, the various BHC compounds range in concentration from between 620 to 1,900 ug/L in MW-513 near extraction well EW-1, to between 0.03 and 0.38 ug/L in MW-501, about 900 feet downgradient of EW-1. Chlorobenzene is present in MW-513 at about 270 ug/L. The constituents DDT, DDE, and DDD had not been detected in monitoring wells for five consecutive years and were removed from the monitoring program in 2000.
9. The Turlock Irrigation District (TID) operates a groundwater elevation control well (TID-7) about ½ mile west of the facility, in the direction of groundwater flow. TID-7 pumps approximately 1,000 gallons per minute most of the year, discharging to TID Lateral 5, which eventually drains into the San Joaquin River. Sampling of TID-7 in 1982 showed no pollution; however, the well contained lindane at 2 µg/l in October 1984, 4 µg/l in May 1985, and 7 µg/l in February 1986. Constituent concentrations have been declining, and during the October 2004 sampling event, TID-7 contained lindane at 1.7 µg/l, a-BHC at 0.9 µg/l, b-BHC at 0.45 µg/l, and d-BHC at 0.38 µg/l. Since October 1994, the chlorobenzene compound 1,4-dichlorobenzene was detected at less than the reporting limit in one event. DDT and its metabolites have not been detected since October 1994, and the monitoring requirement was removed in 2002.

REGULATORY CONSIDERATIONS

10. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
11. Surrounding land uses are agricultural.
12. Surface water drainage ultimately flows to the San Joaquin River. The beneficial uses of the San Joaquin River are municipal, industrial, and agricultural supply; recreation; esthetic

enjoyment; navigation; groundwater recharge; fresh water replenishment; hydropower generation; and preservation and enhancement of fish, wildlife, and other aquatic resources.

13. The designated beneficial uses of underlying groundwater are municipal and domestic supply, agricultural supply, and industrial service and process supply.
14. As described in the Basin Plan, groundwater cleanup goals range between background concentrations to the water quality objectives (WQO), unless background for naturally occurring constituents is higher than the WQO, in which case the cleanup goals are the background concentrations. For this site, the background concentrations are the detection limits, since these compounds are not known to be present upgradient of the site. For WQOs that are not maximum contaminant levels, the WQO is the narrative toxicity objective. Numerical limits cited here implement the objective. The following are the WQOs for constituents of concern:

Constituent	Water Quality Objective	Reference
alpha-benzene hexachloride	0.013 µg/l	Cal/EPA Cancer Potency Factor as a drinking water level
beta-benzene hexachloride	0.023 µg/l	Cal/EPA Cancer Potency Factor as a drinking water level
delta-benzene hexachloride	0.0088 µg/l	Cal/EPA Cancer Potency Factor as a drinking water level
gamma-benzene hexachloride	0.032 µg/l	California Public Health Goal for Drinking Water
Chlorobenzene	20 µg/l	USEPA National Ambient Water Quality Criteria for taste & odor
1,2-dichlorobenzene	24 µg/l	Odor threshold (Amoore and Hautala)
1,4-dichlorobenzene	5 µg/l	California Primary Maximum Contaminant Level

15. Carbon adsorption systems are technically capable of extracting these contaminants to below the detection limit. This Order limits benzene hexachloride isomers to a maximum concentration of 0.5 µg/l in the effluent (30-day average is not to exceed the maximum concentration). The 30-day average concentration of chlorobenzene, 1,2-dichlorobenzene and 1,4-dichlorobenzene are limited to concentrations below the maximum detection limit of 0.5 µg/l, using approved EPA methods. The daily maximum concentration of chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene shall be twice the detection limit, 1.0 µg/l, to allow for laboratory and sampling error.
16. State Board Resolution No. 92-49 (hereafter Resolution No. 92-49) requires the Regional Board to require actions for cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance to conform to the provisions of State Board Resolution No. 68-16 (hereafter Resolution No. 68-16) and the Basin Plan. Pursuant to Resolution No. 92-49, the

Regional Board shall ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or if background levels of water quality cannot be restored, the best water quality which is reasonable and which complies with the Basin Plan including applicable Water Quality Objectives.

17. Section 13267(b) of California Water Code provides that:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and the attached MRP No. R5-2006-XXXX are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that discharged the waste subject to this Order.

18. Issuance of this Order is an action to assure the restoration of the environment and is, therefore, exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.), in accordance with Section 15308 and 15330, Title 14, California Code of Regulations (CCR).

19. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Section 20005, et seq. (hereafter Title 27). Section 20090(d) allows exemption for a project to clean up a condition of pollution that resulted from an unauthorized release of waste based on the following:

- a. The cleanup and abatement action is under the direction of a public agency;
- b. Wastes removed from the immediate place of release will be discharged according to the Title 27 regulations; and
- c. The remedial actions intended to contain wastes at the place of release shall implement the Title 27 regulations to the extent feasible.

20. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the Discharger or county pursuant to California Water Code Section 13801, apply to all monitoring wells.
21. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
22. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
23. The Discharger and interested agencies and persons were notified of intent to prescribe WDRs for this discharge and provided with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
24. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that Order No. 5-00-067 be rescinded and that pursuant to Sections 13263 and 13267 of the California Water Code, Chemurgic Agricultural Chemicals, Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following while conducting the above-described groundwater remediation project.

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991, incorporated herein.]

A. Discharge Prohibitions

1. Discharge of treated groundwater to surface waters or surface water drainage is prohibited.
2. Discharge of waste classified as 'hazardous' under Section 2521 of Title 23, CCR, or as 'designated' under Section 13173 of California Water Code, is prohibited.
3. Discharge of treated groundwater at locations or in a manner different from that described in Finding No. 6 is prohibited.
4. Bypass of overflow of untreated or partially treated groundwater is prohibited.
5. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as

defined by the California Water Code, Section 13050.

6. The discharge shall not cause the degradation of any water supply.

B. Discharge Specifications

1. All extracted groundwater shall be treated by the activated carbon adsorption system prior to discharge to the infiltration trench as identified on Attachment C.
2. The Discharger shall operate the carbon adsorption system for maximum removal efficiencies for organochlorine pesticides.
3. The Discharger shall replace the lead carbon adsorption vessel when the BHC capture efficiency for this vessel is less than or equal to 94% or the treatment system has an effluent concentration of any BHC isomer greater than or equal to 0.35 µg/l.
4. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations

C. Groundwater Limitations

1. The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.
2. The Discharger shall not cause the groundwater to contain concentrations of chemical constituents, including any by-products of any treatment process, in amounts above background.

D. Effluent Limitations

1. The effluent shall not have a pH of less than 6.5 or greater than 8.4.
2. The monthly average discharge flow shall not exceed 10 gallons per minute (0.014 million gallons per day).
3. The discharge of effluent in excess of the following limits is prohibited:

Constituent	Units	30-Day Average	Daily Maximum	Practical Quantitation Limit ¹
Organochlorine Pesticides				
a-BHC	µg/l	0.5	0.5	0.05
b-BHC	µg/l	0.5	0.5	0.05
d-BHC	µg/l	0.5	0.5	0.05
g-BHC	µg/l	0.5	0.5	0.05
Aromatic Volatile Organic Compounds				
Chlorobenzene	µg/l	<0.5	1.0	0.5
1,2-Dichlorobenzene	µg/l	<0.5	1.0	0.5
1,4-Dichlorobenzene	µg/l	<0.5	1.0	0.5

¹ For nondetectable results

E. Provisions:

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2006-XXXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
2. The Discharger shall comply with the “Standard Provisions and Reporting Requirements for Waste Discharge Requirements,” dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as “Standard Provision(s).”
3. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court order requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
4. The Discharger shall use the best practicable cost-effective control technique(s) currently available to comply with discharge limits specified in this Order.
5. The Discharger shall notify the Regional Board within 24 hours of any unscheduled shutdown of the groundwater treatment system.
6. The Discharger shall report any non-compliance, system shutdown, and/or accidental spill or release of liquid or material verbally to the Regional Board within 24 hours of the spill or release, and follow-up the verbal notification with written documentation of the spill or release within 14 calendar days of the incident. This

documentation shall include the cause of the shutdown or release and the corrective action taken (or proposed to be taken) to restart the system.

7. Prior to any modifications at the Site that would result in material change in the quality or quantity of wastes treated or discharged, or any material change in the location of discharge, the Discharger shall report all pertinent information in writing to the Regional Board for review and approval. WDRs may be revised prior to implementation of any modifications.
8. The Discharger shall maintain records of all monitoring information including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, or report. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer.
9. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are to be installed by the Discharger when necessary to achieve compliance with the conditions of this Order.
10. While this Order is in effect, and prior to any change in ownership of the Site or management of this operation, the Discharger shall transmit a copy of this Order to the succeeding Owner/Operator, and forward a copy of the transmittal letter and proof of transmittal to the Regional Board. Transfer of privileges granted under this Order are subject to the discretion of the Executive Officer.
11. The Discharger shall allow the Regional Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the premises regulated by the Regional Board, or the place where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

- d. Sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at this Site.
12. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
13. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, Pamela C. Creedon, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 17 March 2006.

PAMELA C. CREEDON, Executive Officer

Attachments

INFORMATION SHEET

CHEMURGIC AGRICULTURAL CHEMICALS, INC.
GROUNDWATER TREATMENT SYSTEM
ORDER NO. R5-2006-0031
STANISLAUS COUNTY

Chemurgic Agricultural Chemicals, Inc. owns and operates a fertilizer formulating and pesticide retail facility in an agricultural area approximately five miles west of Turlock at 3106 S. Faith Home Road, in Stanislaus County. Between 1999 and 2005, the Discharger had been operating a groundwater extraction and treatment system to remove benzene hexachloride and chlorobenzene constituents. As permitted by Waste Discharge Requirements, the treated effluent was discharged to an infiltration trench within the capture zone of the extraction wells. Planned site improvements conflicted with the location of an extraction well, monitoring well, and the infiltration trench, and in April 2005, Chemurgic ceased discharging. By May 2005, Chemurgic destroyed and relocated one extraction well and the proximate monitoring well, removed the original infiltration gallery, and installed a new infiltration trench. In August 2005, Chemurgic conducted a capture zone analysis verifying that the new infiltration trench is within the capture zone of the extraction wells. These Waste Discharge Requirements will permit Chemurgic to resume groundwater treatment and discharge from the relocated system components.

The groundwater treatment system is a part of the final phase of an integrated cleanup plan for contaminated soil and groundwater. The groundwater cleanup system consists of two extraction wells (EW-1 and EW-2A) to remove water from the shallow aquifer at the location of highest known chemical concentrations, an activated carbon adsorption treatment plant to remove organic chemicals from the groundwater, and an infiltration trench to return the treated groundwater to the same shallow aquifer from which it was extracted. The infiltration trench consists of 60 feet of perforated pipeline buried approximately three feet below grade. All elements of the groundwater extraction and treatment system are within the confines of the Chemurgic property. The design operating capacity of the system is 10 gallons per minute.

Turlock Irrigation District operates a dewatering well (TID-7), located about one-half mile west and downgradient of the Chemurgic facility. This well has contained BHC isomers and chlorobenzene compounds since 1985. These constituent concentrations have been declining, and in December 2005, TID-7 contained lindane at 1.8 µg/l, a-BHC at 0.97 µg/l, b-BHC at 0.67 µg/l, and d-BHC at 0.5 µg/l. TID-7 has not contained chlorobenzene compounds since October 1994. DDT and its metabolites had not been detected between 1994 and 2001 and monitoring was discontinued in 2001. TID-7 discharges at about 1,000 gallons per minute most of the year, discharging to a drainage canal (TID Lateral 5) that eventually drains into the San Joaquin River.

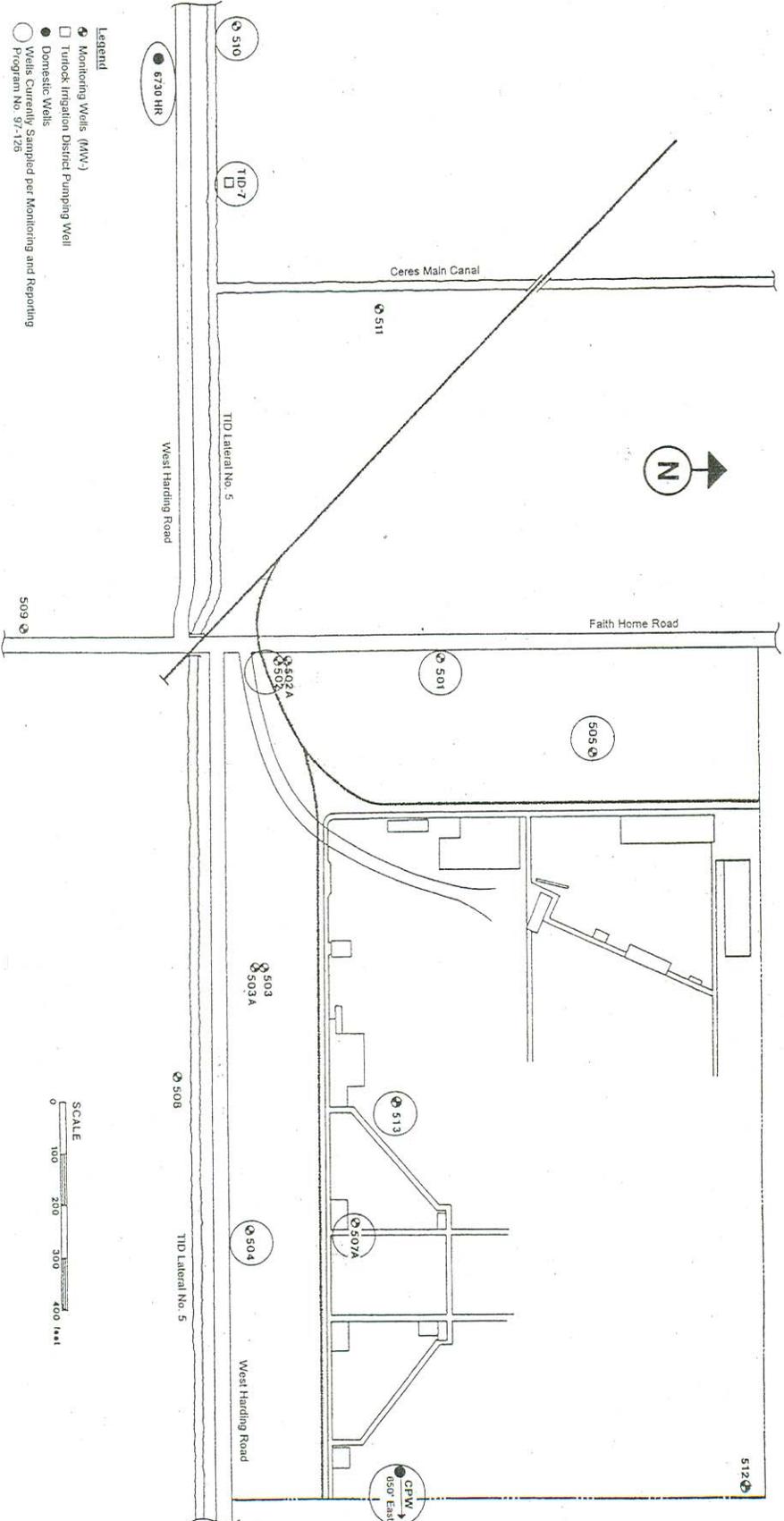
The presence of pesticides and their breakdown products in the groundwater poses a threat to existing and potential beneficial uses of the groundwater. Existing groundwater treatment technology of carbon adsorption is capable of dependably removing these constituents to

CHEMURGIC AGRICULTURAL CHEMICALS, INC.
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concentrations which are generally non-detectable. The operating history of Chemurgic's treatment system shows that the efficiency of the lead carbon vessel can drop from 91% to 25% within a month, resulting in a BHC discharge of 0.3 µg/l. This Order requires the lead carbon adsorption vessel to be replaced when its operating efficiency drops to less than or equal to 94% or when any BHC isomer concentration in the effluent is greater than or equal to 0.35 µg/l and sets the effluent limit for BHC at 0.5 µg/l. This Order also sets the daily maximum effluent limit at two times the practical quantitation limit for chlorobenzene. The daily maximum concentration for any BHC isomer is equal to the 30-day average.

AST: 17 Feb 2006



- Legend**
- ◻ Monitoring Wells (MW)
 - ◻ Turlock Irrigation District Pumping Well
 - Domestic Wells
 - Wells Currently Sampled per Monitoring and Reporting Program No. 97-126



Chemurgic Agricultural Chemicals, Inc.
Facility Map and Monitor Well Locations

Attachment B

