13476

OPERATIONS AND MAINTENANCE

INSPECTION

OCCIDENTAL CHEMICAL CORPORATION
Delaware City, Delaware

Submitted to U.S. EPA - Region III under the terms of the State of Delaware's 1990 Fiscal Year RCRA Grant

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Chronology of Inspections Referred to in this O&M Report

Date	Type of Inspection
December 15, 1988	CME- Groundwater Sampling Observation
December 15, 1989	O&M- Groundwater Sampling Observation; Well Data Collection
March 6, 1990	O&M- Visit to Occidental for Operating Record Review

EXECUTIVE SUMMARY

This Operation and Maintenance (O&M) Inspection of Occidental Chemical Corporation's interim status RCRA surface impoundment reviewed field and office operations related to the generation of groundwater monitoring data. The O&M inspection also served as a follow-up to a December, 1988 Comprehensive Groundwater Monitoring Evaluation (CME) inspection of Occidental which revealed numerous deficiencies in the company's groundwater sampling program.

Pre-inspection of Occidental's Sampling and Analysis Plan indicated compliance with most groundwater monitoring requirements, but revealed several omissions. The major deficiency was the company's failure to submit provisions for ongoing operation and maintenance of groundwater sampling equipment and individual monitoring wells.

On March 6, 1990, Delaware DNREC attempted to review Occidental's on-site operating record as part of the "office portion" of the O&M inspection, but Occidental failed to provide a formal operating record. As an alternative action, DNREC reviewed any written record provided by Occidental which indicated compliance with required sampling, operation and maintenance activities. In addition to the major deficiency of not providing a written operating record, other shortcomings discovered included failure to provide:

- operating, calibration and maintenance procedures for sampling devices;
- description of decision criteria for repairing/replacing sampling equipment and monitoring wells;
- schedules for performing maintenance activities;
- records of all monitoring information; and
- more frequent and intensive inspection of the PVC-cased wells.

On December 15, 1989, DNREC performed an inspection of Occidental's groundwater monitoring network and also observed Occidental's annual sampling event. Well A-7 remained damaged as previously reported in the June, 1989 CME, but remaining wells showed no evidence of damage or deterioration. Observation of sampling procedures revealed the following deficiencies:

- Failure to measure well depths.
- Failure to sample air in the wellhead for organic vapors.
- Failure to attempt downhole detection of immiscible layers.
- Failure to collect purge water for storage and/or analysis.

Despite the above shortcomings, overall sampling protocol practiced by Occidental's personnel was considered very competent relative to previously observed sampling events.

A major concern revealed from the O&M and CME inspections was the adequacy of the groundwater monitoring system currently in place at Occidental's surface impoundment. Potentiometric maps constructed independently by DNREC and Occidental using data obtained during the O&M site inspection indicated a northward flow direction for groundwater. This flow direction determination, combined with the suggestion that well screens may be improperly positioned for identifying known potential contaminants, indicated that the present groundwater monitoring network may not be adequate for assessing impact of Occidental's surface impoundment on groundwater passing the point of compliance.

Conclusions. Based on the gross deficiencies associated with operating record requirements, shortcomings in sampling practices, and potentially serious flaws in the groundwater monitoring network itself, it is recommended that formal, written enforcement action be issued to Occidental. It is further recommended that Occidental's compliance with requirements for upgrading the system design of the groundwater monitoring network be monitored and evaluated by performing another CME. In addition the groundwater monitoring system upgrade can be assessed as part of upcoming post-closure permitting activities.

I. INTRODUCTION

Purpose. According to EPA, the Operation and Maintenance (O&M) Inspection is designed to achieve the following enforcement objectives:

- Determine that the owner/operator's personnel who collect groundwater samples are collecting them properly.

- Determine that sampling devices are in working order and that the owner/operator is abiding by maintenance provisions outlined in the Sampling and Analysis Plan.

- Determine that individual monitoring wells of the groundwater monitoring system continue to yield representative groundwater samples and reliable hydrologic data.

- Identify flagrant violations in operation and maintenance programs, and/or trigger a more thorough scrutiny of the groundwater monitoring program.

- Identify concerns that need to be assessed in a future Comprehensive Groundwater Monitoring Evaluation (CME).

- Collect groundwater elevation data; determine groundwater flow direction; and assess viability of past decisions made by the owner/operator regarding number and placement of monitoring wells.

In addition, the June, 1989 CME report on Occidental Chemical Corporation's groundwater monitoring program summarized numerous errors in sampling procedures and revealed flaws in monitoring well integrity. Accordingly, this O&M Inspection serves as a follow-up inspection evaluating the extent to which Occidental corrected deficiencies listed in the CME.

Regulatory Basis. Occidental operates as an interim status facility. Part 265 of the Delaware Regulations Governing Hazardous Waste (DRGHW) requires interim status facilities to implement an O&M program and 7 Delaware Code Chapter 63 provides enforcement authority to take action against a deficient O&M program. Table 1 lists the specific regulatory requirements pertaining to O&M activities.

Table 1. Summary of Regulations Related to Occidental's Operation and Maintenance Program.

Interim Status	Description
265.15(b)(1)	"The owner/operator must develop and follow a written schedule for inspecting all monitoring equipment,... and operating and structural equipment... that are important to preventing, detecting, or responding to environmental or human health hazards."
265.15(b)(2)	"He must keep this schedule at the facility."
265.15(b)(3)	"The schedule must identify the types of problems (e.g. malfunctions or deterioration) which are to be looked for during the inspection..."
265.15(b)(4)	"The frequency of inspection...should be based on the rate of possible deterioration of the equipment...."
265.15(d)	"The owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions."
265.73(a)	"The owner or operator must keep a written operating record at his facility."
265.73(b)	"The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility:..." (5) "Records and results of inspections..." (6) "Monitoring, testing, or analytical data..."
265.74(a)	"All records, including plans, required under this part must be furnished upon request, and made available at reasonable times for inspection..."
	"[The owner or operator must report to the Regional Administrator] Ground-water contamination and monitoring data as specified in §265.93 and 265.94..."
265.90(a)	"...the owner or operator of a surface impoundment, landfill, or land treatment facility ... must implement a ground-water monitoring program capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer..."
265.92(a)	"The owner or operator must obtain and analyze samples from the installed ground-water monitoring system. The owner or operator must develop and follow a ground-water sampling and analysis plan..."
265.92(a)	"...The plan must include procedures and techniques for: (1) Sample collection; (2) Sample preservation and shipment; (3) Analytical procedures; and (4) Chain of custody control.
265.94(a)(1)	"[The owner or operator must] keep records of the received analyses...., the associated ground-water surface elevations..."
265.94(a)(2)	"[The owner or operator must] report the following ground-water monitoring information to the Regional Administrator:" [annual reports of required ground-water monitoring results including ground-water elevation data].

Source: OSWER 9950.3, March 1988

II. FACILITY BACKGROUND

Occidental is located on the east side of Delaware Route 9 approximately one mile northwest of the town of Delaware City, in New Castle County, Delaware (Figure 1). Occidental's property borders and includes Red Lion Creek to the north, the Delaware River to the east, Star Enterprise refinery and Georgia Gulf Chemicals to the south, and Standard Chlorine Chemicals to the west.

The Occidental facility has operated since 1965 as a manufacturing plant employing a mercury cell electrolytic cathode process to produce chlorine, hydrogen, potassium- and sodium hydroxides from solar salts. Residual brine sludge from this process contains hazardous waste designated as D006, K071 and K106 wastes in Part 261 of DRGHW. The brine sludge is presently loaded onto truck tankers and transported to an offsite hazardous waste disposal facility. Originally, however, the brine sludge was treated to remove mercury, dewatered in a leachate collection system, and transported by dumpster to a hazardous waste surface impoundment located in the southeast corner of Occidental's property (see Figure 1). This surface impoundment represents the specific RCRA disposal unit for which a groundwater monitoring program was developed as required by Section 265.90 of DRGHW.

Figure 2 details the three- celled configuration of the surface impoundment as well as locations of the six monitoring wells currently comprising the groundwater monitoring system. Cell No. 1 received wastes from 1979 until December, 1982, when it attained full capacity and was subsequently closed and capped. Cell No. 2 received wastes and remained active until November 8, 1988, when Occidental began implementing closure steps for its RCRA facility units. Cell No. 3, intended for future disposal purposes, was never constructed as a result of Occidental's decision to proceed with closure of the surface impoundment.

On November 30, 1989, Delaware DNREC conducted a public hearing on Occidental's closure plan. In addition, DNREC is currently in the process of reviewing Occidental's compliance with the closure plan, and will issue a determination on closure certification in the fall of 1990 (if closure is completed). Finally, the State intends to issue a post-closure permit for the surface impoundment following the closure in accordance with a State approved closure plan.

III. SUMMARY OF CONCERNS LISTED IN THE JUNE, 1989 CME

The three major concerns addressed in the June, 1989 CME were: 1) monitoring well integrity; 2) monitoring well screen placement; and 3) numerous errors in groundwater sampling procedures. Regarding well integrity, DNREC observed offset in the casing for well A-7, and inadequate or absent well capping for all six wells comprising the monitoring system. These deficiencies violate requirements of both 265.91(c) and 265.92(a) of DRGHW.

Regarding screen placement, screen intervals for wells do not extend to the base of the Columbia Aquifer. As the hazardous constituents of concern at Occidental are primarily heavy metals (especially mercury) and dense dissolved salts (chlorides and sulfates), location of screens are likely inadequate for defining representative water quality in the aquifer. As such, screen placement deficiencies violate the requirements of Section 265.91(c) and, more importantly, 265.90(a) of DRGHW.

Finally, on December 14, 1988, DNREC personnel witnessed numerous sampling errors on the part of Occidental's sampler. Among those errors listed in the June, 1989 CME were:

- During sampling, no inert ground cover/ tarpaulin was lain in the sampling vicinity. Consequently, wet bailer rope withdrawn from wells often fell directly onto the ground.

- The sampler decontaminated the bailer with only distilled, deionized water, and only occasionally rinsed the bailer rope.

- The bailer continuously malfunctioned, resulting in numerous disruptive insertions of the bailer into the well and longer than necessary exposure times of opened wells to the outside environment.

- The sampler did not wear protective gloves, thereby risking contamination of the bailer system, groundwater samples and himself.

- The sampler did not have adequate water sampling experience. The field personnel who normally performed sampling were not present.

- No post-sampling decontamination area was available.

On November 14, 1989, DNREC took informal enforcement action against Occidental by notifying the facility in writing of the above sampling deficiencies and requiring correction of these deficiencies during the annual/semiannual groundwater sampling event scheduled for December, 1989. On December 15, 1989, DNREC performed a site visit to observe Occidental's groundwater sampling procedures. Occidental's compliance with proper sampling protocol is discussed later as part of this O&M Inspection report.

IV. OFFICE PREPARATION FOR FIELD INSPECTION

The O&M Inspection of Occidental initially involved development of a pre-inspection plan that included usage of EPA's Part One Inspection Form for O&M Inspections. Appendix A shows the completed Part One Form for Occidental and provides the basis for the discussions below on the in-house segment of the O&M inspection.

Review of the Owner/Operator's Sampling and Analysis Plan. The Sampling and Analysis Plan for Occidental is provided in a Groundwater Monitoring Report compiled by Occidental's consultants (Woodward- Clyde, 1987). The plan outlines most of the procedures and techniques required for groundwater sampling and analysis, but was deficient in the following areas:

- Provided only for the measurement of depth to standing water and not for measurement of depth to the bottom of the well.

- Did not provide for the collection and containerization of samples in the order of volatilization potential.

- Did not describe procedures for transferring samples to off-site laboratories.

- Failed to include maintenance schedules for sampling equipment.

- Failed to include decision criteria to be used to replace or repair sampling equipment and monitoring wells.

While failing to mention in writing that samples would be taken in order of volatilization potential, Occidental has complied with this requirement during actual sampling in the field. In addition, the above mentioned failure of Occidental to provide sample transfer procedures to off-site laboratories may be due to the fact that all samples are analyzed by their in-house laboratory. The complete checklist reviewing Occidental's Sampling and Analysis Plan is found on pages B-6, B-7 and B-8 of Appendix A.

Review of Previous Enforcement Actions. On November 14, 1989, DNREC took informal enforcement action against Occidental by issuing a letter requiring Occidental to correct deficiencies in their sampling procedures. According to the latest (June 30, 1989) Facility Management Plan for Occidental, no additional previous enforcement actions related to groundwater monitoring issues have been taken against the company.

Review of the Owner/Operator's Operation and Maintenance Program. No provisions for ongoing operation and maintenance of groundwater sampling equipment and individual wells are provided within or as a supplement to the Sampling and Analyses Plan.

Site-Specific Inspection Objectives. Based on the findings from the office preparation and the June, 1989 CME report for Occidental, the State has four major objectives to achieve during the course of completing other required tasks of an O&M field inspection. These objectives are:

- Determine whether the required written O&M program that was not provided in the Sampling and Analysis Plan is available for review at the facility.

- Inspect the groundwater monitoring wells for evidence of damage or deterioration.

- Observe Occidental's sampling crew during their groundwater sampling to determine if they are complying with the Sampling and Analysis Plan and, more importantly, if they are addressing the gross sampling deficiencies observed during a past sampling event and listed in the June, 1989 CME.

- Collect well data for the purpose of constructing a potentiometric map to compare with a similar map provided by the facility.

Level of Protection during Field Inspection. Field inspection is performed in Level D stage of protection with company-provided contingency for advancing to Level C protection. Overalls, safety glasses, steel-toed, steel shank boots with high-top rubber overboots and hard hat comprise the Level D protective clothing. Occidental provides air purifying respirators to be used by all sampling personnel and observers in the event of a chlorine gas leak at the facility.

V. FIELD INSPECTION

Review of Operating Record. On March 6, 1990, DNREC's field inspector visited Occidental's office to review their operating record to identify evidence of deficiencies in Occidental's sampling and/or operations and maintenance program. Unfortunately, Occidental's representative was unaware of an operating record for the facility and, therefore, could not provide a formal record for review. (As a sidenote, the DNREC inspector notified Occidental's representative of the office inspection one week prior to the visit. Hence, ample time was provided for allowing Occidental to prepare for the inspection.)

As an alternative to providing a formal operating record, the Occidental representative was given the opportunity to provide any written record of their compliance with required sampling and operation and maintenance activities listed in the EPA Operating Record Checklist. Page B-12 of Appendix B shows the completed checklist for the "operating record" review. The following deficiencies were found in this office portion of the Occidental field inspection:

- Failure to provide the actual operating record.
- Failure to provide operating, calibration and maintenance procedures for each sampling device.
- Failure to provide a description of decision criteria to be used to replace or repair sampling equipment and monitoring wells.
- Failure to provide schedules for performing maintenance activities related to the groundwater monitoring system.
- Failure to include records of all monitoring information.
- Failure to provide for more frequent and intensive inspection of the PVC-cased wells.

The above deficiencies pertaining to written requirements for operating and maintaining equipment and monitoring wells are magnified by actual problems that exist for Occidental's groundwater monitoring system. For example, failure to maintain sampling equipment contributed to past problems with bailer malfunction during sampling events. For another example, monitoring well A-7 continues to be in disrepair and there are no plans at this time to repair or replace it. Finally, the lack of written decision criteria for replacing monitoring wells may be stifling efforts to perform a much needed upgrading of the monitoring well network.

The basic failure of Occidental to provide an on-site operating record is in itself sufficient grounds for developing and issuing a complaint. However, the failure of Occidental to show compliance with several operating record requirements when given the opportunity to provide any form of written evidence indicates unawareness of or lack of concern for their obligations regarding this matter.

(Since the March 6, 1990 office visit, Occidental has informed DNREC (via telephone conversation) that an operating record does exist at the facility. The Occidental representative at the March 6, 1990 meeting was a new employee who was unaware of the whereabouts or existence of such a formal record. However, Occidental further mentioned that no entries have been made into the operating record since the surface impoundment stopped receiving hazardous waste in November, 1988. Therefore, despite Occidental's post- inspection "rediscovery" of the operating record, the deficiencies mentioned above essentially remain.)

Inspection of Wells. On December 15, 1989, DNREC performed an inspection of Occidental's groundwater monitoring network. Besides the aforementioned problem with casing offset for well A-7, the DNREC inspector found no additional evidence of damage or deterioration to other wells. However, Occidental's sampling personnel mentioned that the casing for well A-16 was recently found broken immediately below ground surface. Occidental provided written records showing that the well was repaired on December 11, 1989, in time for the groundwater sampling event scheduled for December 15, 1989.

The only other shortcoming observed during the well inspection was the lack of a survey mark for the wells. Surveys have been performed and documented for all wells, but no mark is present on any well. The complete well inspection checklist can be found on page B-14 of Appendix B.

Monitoring Well Data. Groundwater elevation data were obtained from Occidental's sampling personnel during the December 15, 1989 DNREC inspection and can be found on page B-15 of Appendix B. DNREC observed that, while the sampling crew measured the depth to water for each well, they omitted measuring depth to the bottom of each well. DNREC further learned that all previous well depth data presented in Annual Reports and other reports were taken directly from original well construction diagrams and not by updated measurements. Occidental was verbally informed to correct this deficiency and, henceforth, physically measure depths of wells during all future sampling events.

Observation of Sampling Crew During Groundwater Sampling. On December 15, 1989, the DNREC inspector observed Occidental's sampling crew sample groundwater from all six monitoring wells. With the exception of mostly minor deficiencies mentioned below, the sampling personnel complied with the written sampling and analysis procedures contained in Occidental's Sampling and Analysis Plan. In addition, Occidental adequately corrected all but one of the sampling procedure errors observed during the previous (December 15, 1988) inspection. Occidental still has not provided a decontamination area for its samplers.

While pages B-16, B-17 and B-18 of Appendix B provide the complete inspection list for sampling activities at each well, the deficiencies are presented below.

- Failure to measure well depths prior to sampling.

- Failure to sample air in the well head for organic vapors.

- Failure to lower an interface probe into wells to detect immiscible layers.

- Did not collect purge water for storage or analysis or for shipment to a RCRA treatment facility.

Despite the above shortcomings, the performance of Occidental's sampling crew during the December 15, 1989 annual sampling event was considered very competent relative to previously observed sampling events. DNREC will notify Occidental of these sampling deficiencies and the company should address the above inadequacies in time for the semi- annual sampling event in July, 1990.

VI. COMPLIANCE DECISION-MAKING

Construction of Potentiometric Map. Figure 3 represents a water level contour or potentiometric map constructed by DNREC using the water level data collected during the December 15, 1989 sampling event. The northward groundwater flow direction shown on the map concurs with the map submitted by Occidental in their 1989 Annual Report and based on the same data. For comparison purposes, Figure 4 presents the Occidental potentiometric map.

Earlier potentiometric maps have indicated groundwater flow directions to the north- northeast, towards Red Lion Creek, less than 2000 feet to the north of the surface impoundment. With the latest determinations indicating groundwater flow in a more due north direction, the present locations of monitoring wells comprising the groundwater monitoring network for the surface impoundment may not be adequate for assessing groundwater passing the point of compliance. Specifically, no monitoring wells are present due north of a large segment of the last active cell, Cell No. 2, to receive hazardous waste at the surface impoundment. Well A-16 is the closest compliance well and it is positioned northeast of at least half of Cell No. 2. This concern is addressed along with previously mentioned groundwater monitoring concerns, such as well screen placements, in the Violations and Compliance Decisions sections below.

Comparison of Submitted Well Depth Data to Well Design Specifications. As mentioned, Occidental did not measure well depths, but rather submitted the original well depths shown on the actual well design diagrams. Therefore, siltation problems with individual wells cannot be identified at this time. Future sampling events will include as standard procedure measurement of depths of all wells.

Violations. The following violations were found during the Operations and Maintenance Inspection of Occidental. Corresponding regulatory citations from DRGHW are provided at the end of each violation.

- Failure to keep a written operating record. (265.73(a))

- Failure to maintain an operating record which covers all O&M activities for the prior three years. (265.73(b))

- Failure to produce a complete operating record at the time of inspection. (265.74(a))

- Failure to develop detailed operating, calibration and maintenance procedures for each sampling device. (265.15(b))

- Failure to describe decision criteria to be used to replace or repair sampling equipment and monitoring wells. (265.15(b)(3))

- Failure to maintain schedules for performing maintenance (not operation) activities related to the groundwater monitoring system. (265.15(b))

- Failure to develop procedures to assess degradation of well casing. (265.15(b) (1),(3), and (4))

- Failure to measure depths of individual wells. (265.91(a) and (c))

- Well A-7 in the monitoring system is cracked/ degraded and has not been replaced or repaired. (265.91(a) and (c))

- Groundwater elevation data indicate well placement within the groundwater monitoring network is inadequate. (265.91(a) and (c))

- Failure of the sampling plan to establish procedures for sampling immiscibles. (265.91(a) and (c))

- Failure to screen wells which enable sample collection at depths where appropriate aquifer flow zones exist. (265.91(a) and (c))

- Use of data from wells which do not yield representative samples for analysis. (265.91(a) and (c))

- Failure of the sampling plan to provide for safety measures during sampling events (specifically, sampling of air in the well head for organic vapors; and set up of a decontamination area for samplers and sampling equipment). (265.92(a))

Compliance Decisions. By virtue of the evidence collected during the O&M Inspection of Occidental, there are sufficient grounds to issue complaint(s) to the facility. The two major concerns resulting from the O&M Inspection are: 1. The failure of Occidental to keep an operating record, with its numerous related requirements, at the facility; and 2. The overall effectiveness of the groundwater monitoring system currently in place at Occidental.

Regarding the gross deficiencies associated with operating record requirements, it is here recommended that a formal, written enforcement action in the form of a Notice of Violation (NOV) be sent to Occidental. As the operating record is currently essentially non-existent at the facility, the NOV should specify that Occidental comply with virtually all the requirements pertaining to development and implementation of an operating record.

With respect to the groundwater monitoring system, the competent efforts of Occidental's sampling personnel during the last sampling event were potentially rendered ineffective by the flaws in the monitoring well network which they sampled. Casing damage to one of the wells, improper location of well screens to capture dense contaminants likely to be found at the base of the aquifer, and the existence of a network of downgradient wells that apparently does not provide for adequate coverage along the point of compliance undermine the fundamental requirements of a groundwater monitoring program outlined in 265.90(a) of DRGHW. Accordingly, one or more actions are here suggested for consideration:

- Issue an NOV informing Occidental that the system design of their present groundwater monitoring network is not adequate for determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility.

    - The NOV should require Occidental to address, within a specified time, all groundwater monitoring concerns, both major and minor, uncovered in the O&M Inspection; <u>and:</u>

- Subsequent to Occidental's response to the NOV, scrutinize Occidental's compliance with the requirements for upgrading the system design of the groundwater monitoring network as part of a future CME; <u>or:</u>

- If not already accomplished, require Occidental to upgrade the groundwater monitoring system as part of their post-closure activities.

Failure by Occidental to adequately comply with the requirements of either NOV would provide sufficient grounds to pursue additional enforcement actions such as a Secretary's Order and/ or a Case Development Inspection.

VII. REFERENCE CITED

Woodward-Clyde Consultants (1987), Hydrogeologic Report for the Delaware City Plant Hazardous Waste Disposal Impoundment Facility".

FIGURES

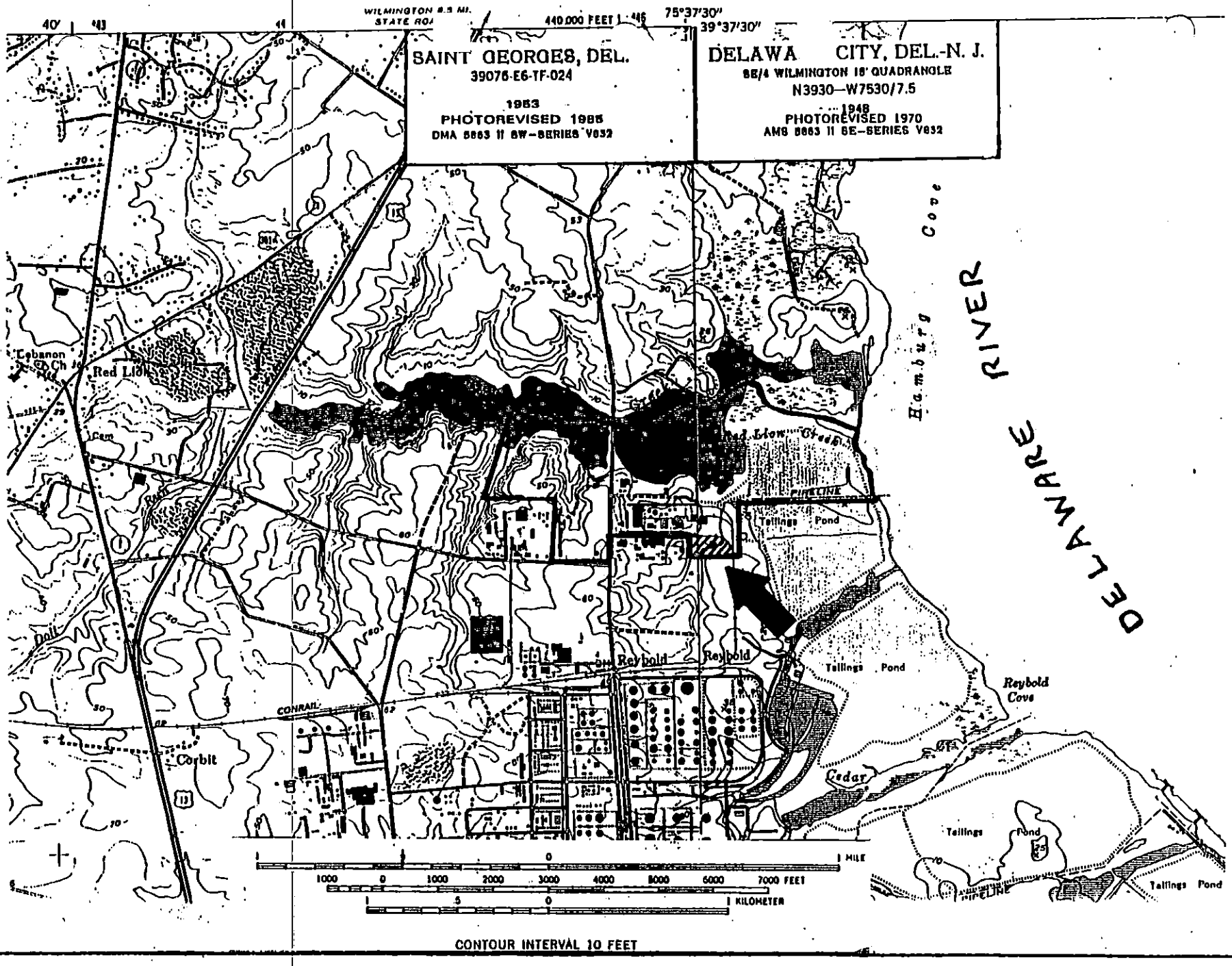


Figure 1. Location of Occidental Chemical Corporation. Arrow points to cross- hatch area representing the hazardous waste surface impoundment.

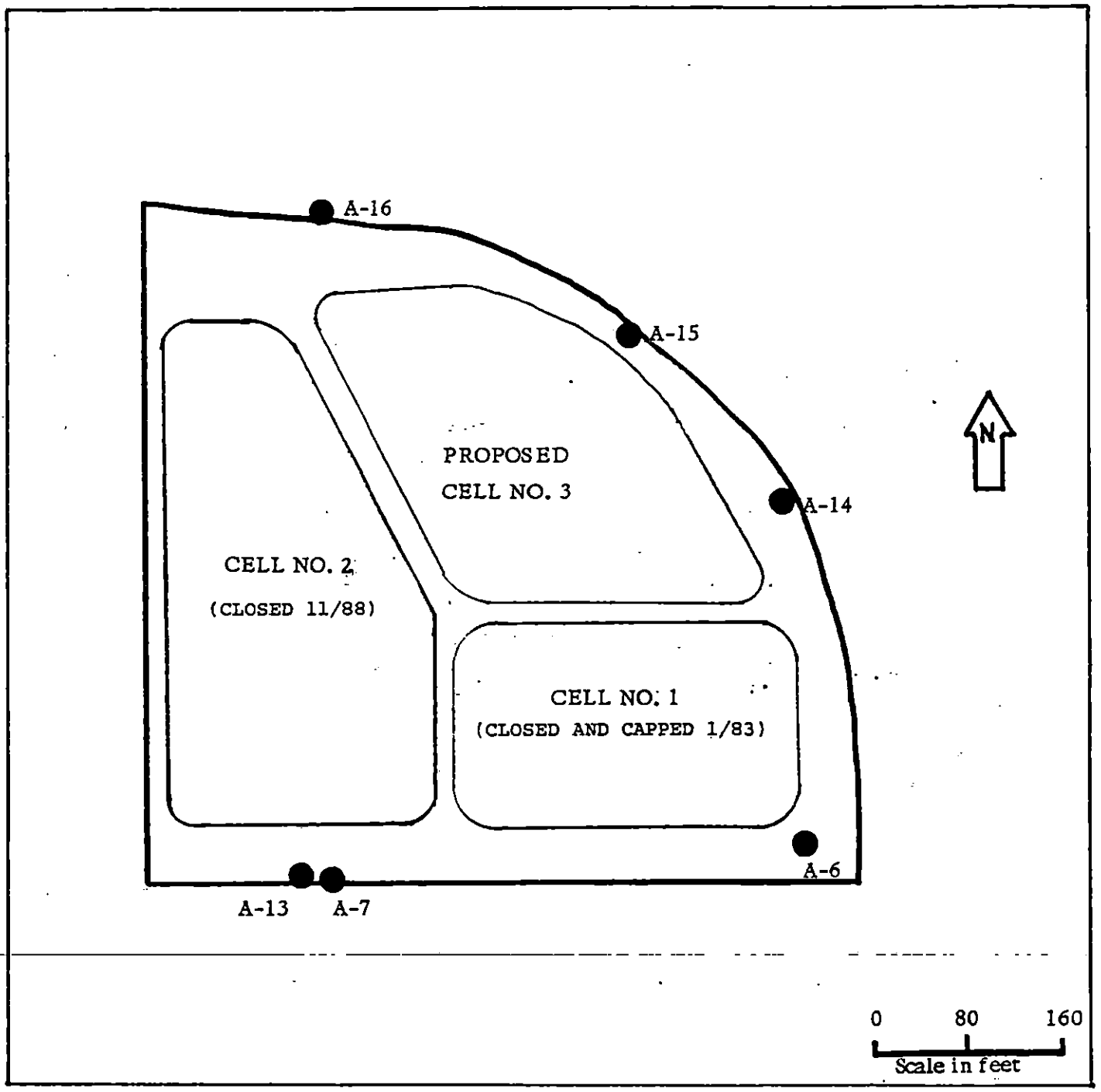


Figure 2. Sketch of Occidental's hazardous waste surface impoundment showing the three- celled configuration of the site and the six wells comprising the groundwater monitoring system for the site.

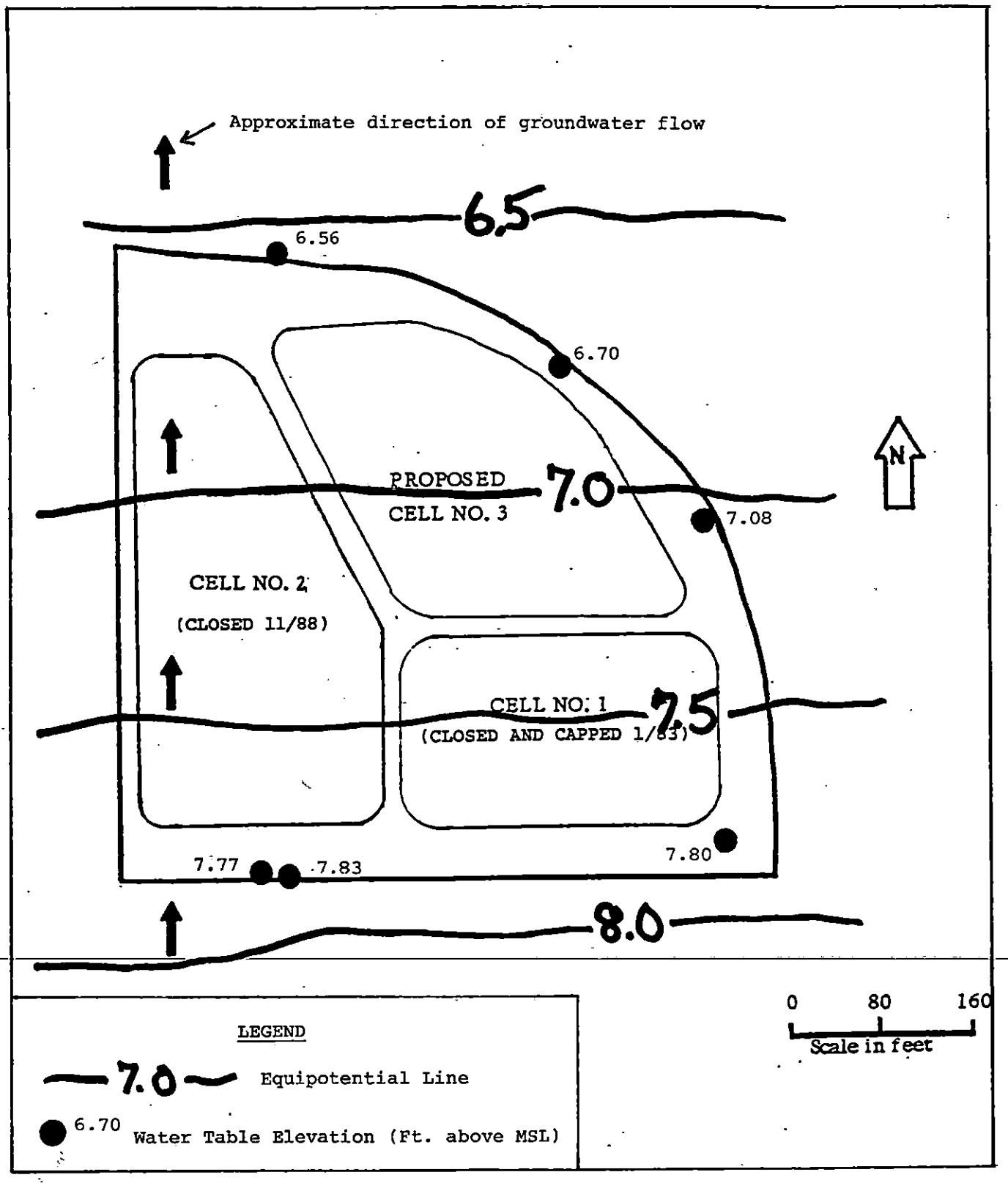


Figure 3. Potentiometric surface map for Occidental's hazardous waste surface impoundment. Elevations measured by Occidental on December 15, 1989.

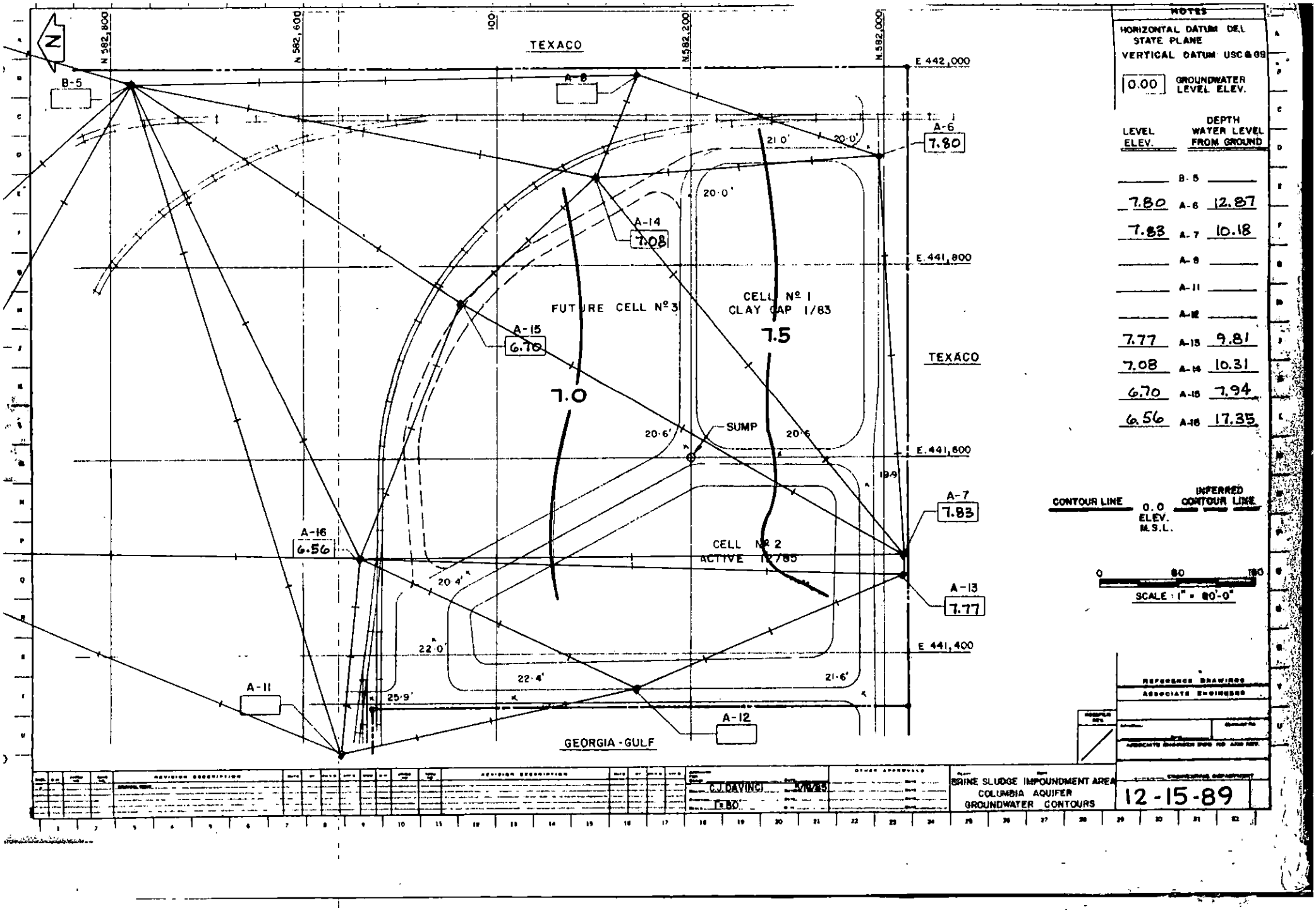


Figure 4. Potentiometric map of Occidental's Hazardous Waste Surface Impoundment. Map constructed by Occidental.

APPENDIX A

O & M Inspection Form

Occidental Chemical Corporation

Part One: Pre-Inspection

PART ONE

The field inspector and the enforcement official will meet and complete four tasks. Those tasks are: 1) review enforcement and permitting actions taken to date at the facility, 2) review the owner/operator's sampling and analysis program, 3) review the owner/operator's O&M program, and 4) prepare site-specific inspection objectives.

1. Facility identification number DED003913266

2. Name of facility contact JEFF PESSEL
   phone number (302) 834-3831

3. Address of facility RIVER ROAD
   DELAWARE CITY, DE 19706

4. Does the facility have:
   Interim Status? (go to 5a) ✓
   - detection monitoring
   - assessment monitoring
   - corrective action (§3008(h))

   Permit Status? (go to 5b)
   - detection monitoring
   - compliance monitoring
   - corrective action

5a. Past actions taken at facility (interim status)

Type	Date(s)
Operation and Maintenance Inspection	
Comprehensive (Ground-Water)	
Monitoring Evaluation	JUNE, 1989 ; August, 1986
Case Development Inspection	
RCRA Facility Assessment	
Compliance Evaluation Inspection	DECEMBER 15, 1989 ; March 28, 1989
Ground-Water Task Force Investigation	

Complete the following questions in regard to the actions listed on the previous page:

- Do you have a copy of completed inspection reports or site studies? Yes ✓ No ___
- For each, summarize deficiencies identified in the owner/operator's sampling program and/or the owner/operator's operation and maintenance program.

No deficiencies noted in CEI reports.

See Section III of this O&M Inspection report for summary of deficiencies reported in the June 1989 CME.

Go to 6a.

6a. Identify enforcement actions issued to the facility in regard to interim status violations. No Enforcement Actions Issued.

Action	Date(s)
• §3008(a) complaint/order	_____
• §3013 complaint/order	_____
• §3008(h) complaint/order	_____
• §7003 complaint/order	_____
• Referral for litigation	_____
• Other	_____

Complete the following regarding the actions listed above:

- For each, identify if the enforcement action is focused on the owner operator's sampling and analysis program and/or the owner/operator's operation and maintenance program. Summarize relevant requirements imposed on the owner/operator.

Go to 7

7. Review and summarize the owner/operator's sampling and analysis plan. (Note: Revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow.) Does the Sampling and Analysis Plan:	Y/N
Include provisions for the measurement of static water elevations in each well prior to each sampling event?	Y
Specify the device to be used for measuring water level elevations?	Y
Specify the procedure for measuring water levels?	Y
Provide for the measurement of depth to standing water and depth to the bottom of the well to 0.01 feet?	N[1]
Explain whether dedicated or non-dedicated sampling equipment is used and the type of sampling equipment?	Y
Describe procedures for evacuating wells?	Y
Provide for the use of sampling devices constructed of inert materials such as fluorocarbon resin or stainless steel?	Y
Provide for dedicated sampling devices for each well or alternately provide for decontamination of sampling devices and the collection of blanks between wells?	Y
Provide for the collection and containerization of samples in the order of volatilization potential?	N[2]
Identify the preservation methods and sample containers the owner/operator will use?	Y
Describe procedures for transferring samples to off-site laboratories?	N/A[3]
Describe a chain-of-custody program which includes the use of sample labels, sample seals, field logbooks, chain-of-custody records, sample analysis request sheets, and laboratory logbooks?	Y
Include provisions for collection of field, trip, and equipment blanks?	Y
Include an inventory of sampling equipment and sampling devices used as part of the monitoring program?	Y
Include detailed operating, calibration, and maintenance procedures for each sampling device?	Y

(Continued)

(Continued from previous page)	Y/N
Include maintenance schedules for sampling equipment? (Refer to Appendix D for discussion of maintenance techniques for gas bladder pumps.)	N[4]
Include decision criteria to be used to replace or repair sampling equipment and/or monitoring wells?	N
*Describe in detail sample handling procedures in place at the owner/operator's laboratory (refer to RCRA Laboratory Audit Inspection Guide for more detail)?	Y[5]
*Describe in detail the procedures that will be used to perform analyses in the owner/operator's laboratory (refer to RCRA Laboratory Audit Inspection Guide for more detail)?	Y[5]
*Describe in detail quality assurance/quality control procedures in place? (refer to RCRA Laboratory Audit Inspection Guide for more detail.)	Y[5]

*NOTE: *The RCRA Laboratory Audit Inspection Guide (RCRA Ground-Water Monitoring Systems)* describes the information the owner/operator should include in the Sampling and Analysis Plan regarding the owner/operator's laboratory program. The inspector may want to supplement the checklist in this manual with the checklist in the *RCRA Laboratory Audit Inspection Guide* while planning an operation and maintenance inspection.

Go to 8

COMMENTS ON SAMPLING AND ANALYSIS PLAN

NOTES

1 Does not provide for measurement of depth to the bottom of the well. Original depth of well is recorded.

2 Not mentioned in plan, but Occidental has been observed collecting/containerizing samples in order of volatilization potential.

3. All analyses are performed by on-site lab

4. Bailers require little or no maintenance. No maintenance schedules for pH and conductance meters are provided.

5. LAI not incorporated at this time. Necessity of an LAI will be determined following comparison of data from DNREC's lab to data from Occidental's lab.

8. Complete the following table. Use a separate entry for each well and piezometer in the monitoring system:

Identification Number	Type of Well Sampling Equipment (pump or bailer)	Depth to Water Last Inspection (if available)	Depth to Bottom Last Inspection (if available)	Notes/Comments
1. A-6	4" Plexiglas Bailer	NOT AVAILABLE	NOT AVAILABLE	
2. A-7	2" Stainless Steel Bailer	↓	↓	
3. A-13	4" Plexiglas Bailer			
4. A-14	4" Plexiglas Bailer			
5. A-15	4" Plexiglas Bailer			
6. A-16	4" Plexiglas Bailer			
7.				
8.				
9.				
10.				
11.				

APPENDIX B

O & M Inspection Form

Occidental Chemical Corporation

Part Two: Field Inspection

PART TWO

The field inspector will complete four tasks during the field inspection. They are: 1) review the operating record to identify evidence of deficiencies in the owner/operator's sampling and/or operation and maintenance programs; 2) visually inspect each well and piezometer for evidence of damage or deterioration; 3) obtain measurements from the operations record of depths of water levels and well depths for each well and piezometer; and 4) visually observe the owner/operator's field crew as they collect ground-water samples.

Name of inspector(s) ERIC J. TRINKLE

Date(s) of inspection 12/15/89 (Field); 3/6/90 (OFFICE)

1. Review the operating record of the facility. Does the operating record: [1]	Y/N[1]
Include annual reports of ground-water monitoring results including ground-water level data from each well and piezometer in the monitoring system?	Y
Include an inventory of all sampling devices and purging equipment in use at the facility and information on model number, serial number and manufacurers name?	Y
Include detailed operating, calibration and maintenance procedures for each sampling device?	N
Describe decision criteria to be used to replace or repair sampling equipment and/or monitoring wells?	N
Include schedules for performing operation (YES) and maintenance (NO) activities related to the ground-water monitoring system?	Y/N
Include records for ground-water monitoring which provide information on 1) the date, exact place and time of sampling or measurements; 2) the individual(s) who performed the sampling or measurements; 3) the date(s) analyses were performed; 4) the analytical techniques or methods used; and 5) the results of such analyses?	Y
Include records of all monitoring information including all calibration and maintenance records?	N
Include records of monitoring information including determination of ground-water surface elevations?	Y
Include a determination of ground-water flow rate and direction(s) in the uppermost aquifier on an annual basis (e.g., prepare a potentiometric map annually using data collected during the year)?	Y
Provide for more frequent and intensive inspection of wells constructed of non-inert casing such as PVC? (Refer to Appendix A for permit example.)	N

COMMENTS ON OPERATING RECORD

NOTE:

1. The Occidental representative was unaware of an operating record for the facility and, hence, did not provide an operating record for review. Therefore, all Yes/No determinations for Checklist 1 of Part Two are based on Occidental's providing some written record of compliance with required sampling, and operation and maintenance activities outlined in Checklist 1.

REFER TO THE NARRATIVE FOR FURTHUR DISCUSSION/EXPLANATION and SUBSEQUENT EVENTS.

2. Visually inspect each well and piezometer and complete the table below (one line entry for each well or piezometer):

Well/ Piezometer	Survey Mark Present? 1	Standing or Ponded Water?	Evidence of Collision Damage?	Evidence of Frost Heaving? ↑/OR→	Evidence of Casing Degradation? ←↑/or	Lock in Place?	Evidence of Well Subsidence?	Photograph Taken?
A-6	N	N	N	N	N	Y	N	N
A-7	N	N	N	Y	Y	Y	N	N
A-13	N	N	N	N	N	Y	N	N
A-14	N	N	N	N	N	Y	N	N
A-15	N	N	N	N	N	Y	N	N
A-16	N	N	N	N	N	Y	N	N

1 WELL LOCATIONS AND top of casing measurements have been surveyed, but no mark is present.

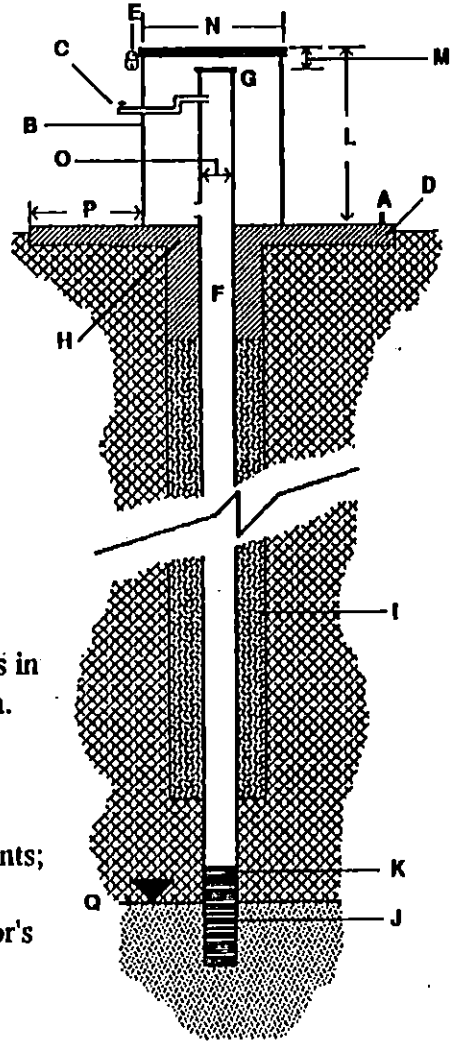
3. Obtain data on depth to standing water and depth to the bottom of each monitoring well and piezometer in the owner/operator's monitoring system. Record depth measurements to the nearest 0.01 feet. Record the measurements

Date	Well/ Piezometer I.D. No.	Depth to Water (0.01') (G to Q)	Depth of Well/ Piezometer (0.01') 1
12/15/89	A-6	14.37	23.67
12/15/89	A-7	13.13	18.42
12/15/89	A-13	12.87	59.29
12/15/89	A-14	12.72	23.58
12/15/89	A-15	10.90	52.42
12/15/89	A-16	19.16	67.42

1: Not measured. Depth was taken from original well construction data.

Key:

A - survey elevation mark
B - protective outer casing
C - gas vent
D - concrete apron
E - fitted lock
F - primary casing material
G - cap for primary casing
H - bore hole seal
I - annular space seal
J - well screen
K - filter pack
L - height of riser
M - elevation difference
N - diameter of outer casing
O - diameter of primary casing
P - radius of apron
Q - water level below surface



1. The field inspector has several options in collecting ground water elevation data. The inspector may:
   a. obtain past data from the operating record;and/or
   b. take his/her own depth measurements; and/or
   c. obtain data from the owner/operator's sampling crew.

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10 YEARS + : GROUNDWATER SAMPLING
LAB TECHNICIAN	BRUCE HARPER	10 YEARS + : GROUNDWATER SAMPLING

Well Identification Number A-6	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels ONLY in the well and well depths prior to the sampling event?	Y + N[1]	N
Did the sampling crew use a steel tape or electronic device to take depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1. Y 2. N 3. Y 4. N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N[2]	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	N[3]	

N/A – NOT APPLICABLE

(Continued)

Well Identification Number A-6	Y/N	Photograph Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	N
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?		
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

(Continued)

Well Identification Number A-6	Y/N	Photograph Taken Y/N
Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube?	N/A	N
Was the bladder pump discharge flow checked for the presence of gas bubbles before each sample collection, as a test for bladder integrity?	↓	↓
Was bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?	↓	
Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gs? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?	↓	
Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters?	Y	
Did the sampling crew measure the following parameters in the field: pH temperature, specific conductance? NO	Y[4]	
Did the sampling crew sample background wells before sampling downgradient wells?	Y	
Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?	Y	
Did the sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring ~~metals~~ ORGANIC analysis?	Y	
If metals were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent and water, and rinsed with nitric acid, tap water, hydrochloric acid, tap water and finally Type II water?	Y[5]	
If organics were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent, rinsed with tap water, distilled water, acetone, and finally pesticide quaility hexane?	Y[5]	
Did the sampling crew filter samples requiring analysis for organics?	N[6]	

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10+; GROUNDWATER
LAB TECHNICIAN	BRUCE HARPER	10+; GROUNDWATER

Well Identification Number A-7	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels in the well and well depths prior to the sampling event? YES NO	Y/N[1]	N
Did the sampling crew use a steel tape or electronic device to take depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1. Y 2. N 3. Y 4. N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N[2]	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	Y	

N/A – NOT APPLICABLE

(Continued)

Well Identification Number A-7	Y/N	Photograph Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	N
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		↓
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?		
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

(Continued)

Well Identification Number A-7	Y/N	Photograph Taken Y/N
Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube?	N/A	N
Was the bladder pump discharge flow checked for the presence of gas bubbles before each sample collection, as a test for bladder integrity?	N/A	✓
Was bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?	N/A	
Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gs? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?	N/A	
Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters?	Y	
Did the sampling crew measure the following parameters in the field: pH, temperature, specific conductane?	Y[4]	
Did the sampling crew sample background wells before sampling downgradient wells?	Y	
Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?	Y	
Did the sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring ~~metals~~ ORGANIC analysis?	Y	
If metals were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent and water, and rinsed with nitric acid, tap water, hydrochloric acid, tap water and finally Type II water?	Y[5]	
If organics were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent, rinsed with tap water, distilled water, acetone, and finally pesticide quaility hexane?	Y[5]	
Did the sampling crew filter samples requiring analysis for organics?	N[6]	

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10 YEARS+: Groundwater Monitoring
LAB TECHNICIAN	BRUCE HARPER	10 YEARS+: Groundwater Sampling

Well Identification Number A-16	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels in the well and well depths prior to the sampling event?	Y/N1	N
Did the sampling crew use a steel tape or electronic device totake depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1 Y 2 N 3 Y 4 N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N2	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	N3	

N/A – NOT APPLICABLE

(Continued)

Well Identification Number A-16	Y/N	Photograph Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	N
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		↓
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?		
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

(Continued)

Well Identification Number A-16	Y/N	Photograph Taken Y/N
Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube?	N/A	N
Was the bladder pump discharge flow checked for the presence of gas bubbles before each sample collection, as a test for bladder integrity?	N/A	↓
Was bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?	N/A	
Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gs? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?	N/A	
Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters?	Y	
Did the sampling crew measure the following parameters in the field: pH, temperature, specific conductane?	Y[4]	
Did the sampling crew sample background wells before sampling downgradient wells?	Y	
Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?	Y	
Did the sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring ~~metals~~ ORGANIC analysis?	Y	
If metals were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent and water, and rinsed with nitric acid, tap water, hydrochloric acid, tap water and finally Type II water?	Y[5]	
If organics were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent, rinsed with tap water, distilled water, acetone, and finally pesticide quaility hexane?	Y[5]	
Did the sampling crew filter samples requiring analysis for organics?	N[6]	

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10 YEARS +: GROUNDWATER SAMPLING
LAB TECHNICIAN	BRUCE HARPER	10 YEARS +: GROUNDWATER SAMPLING

Well Identification Number A-15	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels in the well and well depths prior to the sampling event?	Y/N[1]	N
Did the sampling crew use a steel tape or electronic device totake depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1 Y 2 N 3 Y 4 N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N[2]	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	Y	

N/A → NOT APPLICABLE

(Continued)

Well Identification Number A-15	Y/N	Photograph Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	N
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		↓
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?		
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

(Continued)

Well Identification Number A-15	Y/N	Photograph Taken Y/N
Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube?	N/A	
Was the bladder pump discharge flow checked for the presence of gas bubbles before each sample collection, as a test for bladder integrity?	N/A	
Was bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?	N/A	
Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gs? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?	N/A	
Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters?	Y	
Did the sampling crew measure the following parameters in the field: pH, temperature, specific conductane?	Y[4]	
Did the sampling crew sample background wells before sampling downgradient wells?	Y	
Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?	Y	
Did the sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring ~~metals~~ ORGANIC analysis?	Y	
If metals were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent and water, and rinsed with nitric acid, tap water, hydrochloric acid, tap water and finally Type II water?	Y[5]	
If organics were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent, rinsed with tap water, distilled water, acetone, and finally pesticide quaility hexane?	Y[5]	
Did the sampling crew filter samples requiring analysis for organics?	N[6]	

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10 YEARS + : GROUNDWATER SAMPLING
LAB TECHNICIAN	BRUCE HARPER	10 YEARS + : GROUNDWATER SAMPLING

Well Identification Number A-14	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels in the well and well depths prior to the sampling event?	Y/N[1]	N
Did the sampling crew use a steel tape or electronic device to take depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1 Y 2 N 3 Y 4 N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N[2]	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	N[3]	

N/A - NOT APPLICABLE

(Co

(Continued)

Well Identification Number A-14	Y/N	Photogra Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?		
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

4. Observe the owner/operator's staff as they collect ground-water samples at several wells. Complete the following table for each well (Note: revise or add to the table if permit conditions dictate a different requirement the owner/operator must follow):

Position/Title	Name	Sampling Experience (years and type)
LAB SUPERVISOR	JACK ARMSTRONG	10 YEARS + : Groundwater sampling
LAB TECHNICIAN	BRUCE HARPER	10 YEARS + : Groundwater sampling

Well Identification Number A-13	Y/N	Photograph Taken Y/N
Did the sampling crew measure static water levels in the well and well depths prior to the sampling event? YES NO	Y/N[1]	N
Did the sampling crew use a steel tape or electronic device totake depth measurements?	Y	↓
Did the sampling crew record depths to +/– 0.01 feet?	Y	
Did the sampling crew follow these procedures: 1. remove locking and protective cap; 2. sample the air in the well head for organic vapors; 3. determine the static water level; and 4. lower an interface probe into the well to detect immiscible layers.	1. Y 2. N 3. Y 4. N	
If immiscible samples were collected, were they collected prior to well purging?	N/A	
Did the sampling crew evacuate low yielding wells to dryness prior to sampling?	N/A	
Did sampling crew evacuate high yielding wells so that at least three casing volumes were removed?	Y	
Did the sampling crew collect the purge water for storage and analysis or for shipment off-site to a RCRA treatment facility?	N[2]	
Were sampling devices constructed of fluorocarbon resins or stainless steel?	N[3]	

N/A - NOT APPLICABLE

(Continued)

Well Identification Number A-13	Y/N	Photograph Taken Y/N
If the sampling crew used dedicated samplers, did they disassemble and thoroughly clean the devices between samples?	N/A	
If samples are collected for organic analyses, did the cleaning procedure include the following steps: 1. non phosphate detergent wash 2. tap water rinse 3. distilled/deionized water rinse 4. acetone rinse 5. pesticide-grade hexane rinse?		
If samples are collected for inorganic analyses, does the cleaning procedure include the following steps: 1. dilute acid rinse (HNO_3 or HCL) 2. distilled/de-ionized water rinse?	N/A	
Did the sampling crew take trip blanks, field blanks and equipment blanks?	Y	
If the sampling crew used bailers, were they bottom valve bailers?	Y	
If the sampling crew used bailers, was "teflon" coated wire, single strand stainless steel wire or monofilament used to raise and lower the bailer?	Y	
If the sampling crew used bailers, did they lower the bailer slowly to the well?	Y	
If the sampling crew used bailers, were the bailer contents transferred to the sample container to minimize agitation and aeration?	Y	
Did the sampling crew take care to avoid placing clean sampling equipment, hoses, and lines on the ground or other contaminated surfaces prior to insertion in the well?	Y	
If the sampling crew used dedicated bladder pumps: Was the compressed gas from an oilless compressor certified quality commercial compressed gas cylinder? If not, was a suitable oil removal purification system installed and maintained?	N/A	
Was the bladder pump controller capable of throttling the bladder pump discharge flow to 100 ml/min or less for continuous periods of at least 20-30 seconds without restricting liquid discharge?	N/A	

(Continued)

Well Identification Number A-13	Y/N	Photograph Taken Y/N
Were samples taken from the bladder pump discharge tube, and not from any purge device discharge tube?	N/A	
Was the bladder pump discharge flow checked for the presence of gas bubbles before each sample collection, as a test for bladder integrity?	N/A	
Was bladder pump flow performance monitored regularly for dropoff in flow rate and discharge volume per cycle?	N/A	
Was the bladder pump incorporated in a combination sample-purge pump design which can expose the bladder pump interior and discharge tubing to the pump drive gs? If so, were operating procedures established and followed to prevent at all times the entry of drive gas into the sample flow or into the bladder pump interior?	N/A	
Did the sampling crew collect and containerize samples in the order of the volatilization sensitivity of the parameters?	Y	
Did the sampling crew measure the following parameters in the field: pH, temperature, specific conductane?	Y4	
Did the sampling crew sample background wells before sampling downgradient wells?	Y	
Did the sampling crew use fluorocarbon resin or polyethylene containers with polypropylene caps for samples requiring metals analysis?	Y	
Did the sampling crew use glass bottles with fluorocarbon resin-lined caps for samples requiring ~~metals~~ organics analysis?	Y	
If metals were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent and water, and rinsed with nitric acid, tap water, hydrochloric acid, tap water and finally Type II water?	Y5	
If organics were the analytes of concern, did the sampling crew use containers cleaned with nonphosphate detergent, rinsed with tap water, distilled water, acetone, and finally pesticide quaility hexane?	Y5	
Did the sampling crew filter samples requiring analysis for organics?	N6	

COMMENTS ON SAMPLING PROGRAM

NOTE

1. Well depths were not measured. Depths recorded were taken from original well construction logs.
2. Purge water was spilled/poured onto ground on the downgradient side of each well.
3. Bailer was constructed of clear plexiglass.
4. Only pH and specific conductance were measured. Temperature was not taken.
5. Did not observe container cleaning/preparation procedures. However, sampling and analysis plan states that containers were to be prepped as outlined in this checklist.
6. Filtering performed at facility's own lab immediately after receiving samples.

SEE NARRATIVE FOR MORE DISCUSSION ON THE SAMPLING PROGRAM.

Eric I. Trinkle, Inspector

TSD

HAZARDOUS WASTE CHECKLIST FOR INSPECTION OF GENERATORS

Name of Facility: Occidental chemical corporation

Address: River Road & Governor Lea Boulevard
Delaware City, DE 19706 - 1550

EPA Generator ID Number: DED 00 39 13 266

Facility Inspection Representative: Richard Timmons

Title: Technical Manager

Telephone Number: (302) 834 - 3942

Inspection File ___

Name/No: ___

Reviewer ___

Date reviewed: ___

Form "A"

Pert. Regs.

State of Delaware Regulations Governing Hazardous Wastes

1. Please provide a brief narrative explaining the type of work activity that occurs at the generator.
The facility manufactures chlorine, caustic soda (sodium hydroxide), caustic potash (Potassium hydroxide), and hydrogen. An electrochemical mercury cell process is used in manufacturing the product.

2. Does the generator dispose of its wastes .....

A. On-site (Circle one or both)
(B.) Off-site

Note: if on-site, then checklist for both a generator and TSD facility must be completed if on-site more than 90 days.

3. What is the amount of hazardous waste (in kilograms) produced by the generator facility in a month? — in a year? 4,106 Tons/year *
(If the amount is less than 1,000 kg/month, then the facility qualifies as a small generator and Form C should be completed instead of Form A.)

4. What categories of hazardous wastes result from the generator's facility? Please circle:

A. Ignitable wastes — YES (NO)

B. Reactive wastes — YES (NO)

C. Corrosive wastes — YES (NO)

D. EP Toxic wastes — (YES) NO

E. RCRA Listed Wastes — (YES) NO

* K071 3600 Tons/yr.
K106 300 "
D009 200 "
U211 6 "
D001 300 gallons/yr degreaser

5. Is the generator presently . . .

A. Treating hazardous waste? Yes (No)

B. Storing hazardous waste? only for less than 90 days after closure (Yes) No

C. Disposing hazardous waste? only off-site disposal from 11/9/83 Yes No N/A

Note: if the generator performs any of the activities noted in Question 5, then the inspector must complete Form B, entitled "RCRA Checklist for inspection of hazardous waste treatment, storage and disposal facilities."

262.20 6. Is a manifest system currently in operation at the generator's facility so that offsite shipment of hazardous wastes can be tracked? (Yes) No

7. Please inspect the generator's manifest for the following information:

A. Is the TSD facility which receives a generator's hazardous waste identified by name, address, and EPA ID number? (Yes) No

262.20(c) B. Is an alternative facility designated in case of an emergency? Yes (No)

C. Is a serialized manifest document number included on the form? (Yes) No

262.20(a)(2) D. Is the generator's name, address, telephone number and EPA ID number included on the form? (Yes) No

E. Is the name and identification number of each transporter included on the form? (Yes) No

262.20(a)(3) F. Is a description of the generator's hazardous waste to be treated, stored, or disposed included on the manifest? (Yes) No

G. Is the quantity of each waste by units of weight or volume and the type and number of containers loaded in the transport vehicle included on the manifest form? (Yes) No

H. Is the following certification noted on the generator's manifest form and is the certification acknowledged by the generator's signature?

"This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the available regulations of the DOT and EPA." (Yes) No

262.22 I. Are there adequate copies of the manifest available for generator, transporter, and TSD's? (yes) NO

8. Is hazardous waste being stored on-site by the generator for less than 90 days? (Yes) No

If so,

262.34(a)(3) A. Is the date accumulation of waste began clearly marked on each storage container? Yes No

262.34(a)(2) B. Are storage containers in good condition, i.e., no corrosion, leaking, or structural deformations? Yes No

262.34(a)(4) C. At the time of accumulation, are the storage containers clearly labeled as containing a particular haazardous waste in accordance with DOT regulations? Yes No

9. Does the generator have an established contingency plan to deal with emergencies that may impact hazardous waste currently in storage at the facility? Yes No

265.16(a) 10. Have facility personnel successfully completed a program of classroom training or on-the-job training in hazardous waste management procedures? Yes No

2[illegible]16(d) 11. Does the generator facility maintain a record of job titles for personnel that are involved with hazardous waste management and the name of the employee filling each job? Yes No

265.16(d)(2) 12. Does the generator facility have on record a written position description for each job title noted in Question #11? Yes No

265.16(d)(3) 13. Does the facility presently maintain a written description of the type and amount of introductory and continuing training for those employees noted in Question #11? Yes No

265.32(a) 14. Does the generator facility have installed the following equipment:

A. An internal communications or alarm system capable of providing immediate emergency instructions to facility personnel if the hazardous waste storage area is threatened by fire or explosion? Yes No

B. A device at the scene of hazardous waste generator operations capable of summoning emergency assistance from Police, Fire departments, etc.? Yes No

C. Fire control equipment and an adequate supply of fire fighting water or fire supression chemicals? Yes No

265.35 15. Does the generator facility have adequate aisle space to allow the unobstructed movement of personnel and equipment during emergencies? Yes No

265.50 16. Does the facility have a contingency plan which contains the following elements: updated in oct 1989

265.52(c) A. A detailed description of emergency procedures facility personnel will implement in response to fires, explosions, or unplanned releases of hazardous wastes to air, soil, and water? Yes No

265.52 (d) B. A detailed description of arrangements formally agreed to by local police, fire departments, and State and local emergency teams to provide assistance during emergency situations? (Yes) No

265.52(e) C. A listing of names, addresses, and phone numbers of the generator facility emergency response coordinators? (Yes) No

Note: This listing should include names and phone numbers of emergency coordinators available on twenty-four hour basis.

265.52(e) D. A list of appropriate emergency equipment necessary to cope with emergencies at the generator facility? (Yes) No

265.52(f) E. An evacuation plan for the generator facility if Management believes such a plan is a definite requirement for their particular generator facility. (Yes) No

17. Please provide detailed comments on specific problems encountered during the inspection. For instance, industry requests for clarification of specific RCRA rules and regulations and their applicability at the facility can be noted below or described in a separate memo attached to the inspector's checklist.

None

Inspector's Name: Jay Brahmbhatt

Title: Environmental Engineer

Agency: DNREC

Office location: DOVER

Date of Inspection: 12/15/89

Inspector's Name:

Title:

Agency:

Office location:

Date of Inspection:

RCRA CHECKLIST FOR INSPECTION OF TSD FACILITIES

RO USE

Name of Facility: Occidental chemical corporation

Address: River Road & Governors Lea Boulevard
Delaware City, DE 19706-1550

EPA TSD ID Number: DED 00 39 13 266

Facility Inspection Representative: Richard Timmons

Title: Technical Manager

Telephone: (302) 834-3942

Inspection File No. _____

Reviewer _____

Date Reviewed _____

Form "B"

SITE CHARACTERIZATION (Please denote if the facility presently treats, stores, or disposes of hazardous waste. Also, mark the appropriate sub-category that occurs at the particular facility).

TREATER	STORER	DISPOSER
___ Filtration	___ Open Pile	___ Landfill operation
___ Incineration	___ Surface Impoundment	___ Land Treatment
___ Thermal Reduction	X Drum	X Surface Impoundment*
___ Recycling/Recovery	X Above ground tank(s)	___ * stopped on 11/8/88
___ Chem/Phys/Bio Treatments	___ Below ground tank(s)	___ Other _____
___ Waste Oil	___ Other Roll-off dumpsters	
___ Reprocessing		
___ Solvent Recovery		
___ Other _____		

INSPECTION PROCEDURE

1. Does the facility generate hazardous waste? (Yes) No

Note: Please complete the generators checklist, Numbers 1 thru 8, if the TSD facility generates hazardous wastes which are disposed off-site.

264.13 2. Has the facility analyzed the hazardous wastes in accordance with the approved waste analysis plan? (Yes) No

K071, K106, D009 to S.I prior to 11/8/88.

264.14	3.	Does the TSD facility have a 24-hour surveillance system which monitors and controls entry to the active portion of the facility? A guard at a gate	(Yes)	No
		If not		
		A. Does the facility have an artificial or natural boundary which surrounds active portions of the facility and,	Yes	No
		B. Does the facility have means to control entry at all times, i.e., gates, attendants, locked entrances, etc.?	Yes	No
264.14	4.	Does the TSD facility have a restricted access sign posted at each entrance to the active portion of the facility? An example would be: "Danger-Unauthorized Personnel Keep Out!"	(Yes)	No
264.15	5.	Does the TSD facility have a written schedule for inspecting all emergency equipment and monitoring equipment, security devices, and operating and structural equipment. Has the owner/operator inspected the facility in accordance with the approved inspection schedule? Daily & weekly	(Yes)	No
264.16(a)	6.	Have facility personnel successfully completed a program of classroom training or on-the-job training in hazardous waste management procedures in accordance with the approved personnel training plan?	(Yes)	No
264.16(d)	7.	Does the TSD facility maintain a record of job titles for all personnel that are involved with the handling of hazardous waste and the name of the employee filling each job?	(Yes)	No
264.16(d)	8.	Does the TSD facility have on record a written position description for each job title noted in Question #7.	(Yes)	No
264.16(d)	9.	Does the facility maintain a written description for the type and amount of introductory and continuing training for those employees noted in Question #7?	(Yes)	No
264.32	10.	Does the TSD facility have installed the following equipment:		
		A. An internal communications or alarm system capable of providing immediate emergency instructions to facility personnel if the hazardous waste storage area is threatened by fire or explosion?	(Yes)	No

	B.	A device at the scene of hazardous waste TSD operations capable of summoning emergency assistance from Police, Fire departments, etc.?	Yes	No
	C.	Fire control equipment and an adequate supply of fire fighting water or fire supression chemicals?	Yes	No
264.35	11.	Does the TSD facility have adequate aisle space to allow the unobstructed movement of personnel and equipment during emergencies?	Yes	No
264.53	12.	Does the facility maintain an updated copy of the approved contingency plan at the facility.	Yes	No
264.55	13.	Does the facility have at all times at least one employee either on-call or on the site who is responsible for coordinating all emergency response measures?	Yes	No
	14.	Does the on-site or off-site facility have a written operating record which contains the following information:	Yes	No
264.73(b)(1)	A.	A description and the quantity of each hazardous waste received/managed at the on-site or off-site treatment, storage or disposal facility.	Yes	No
264.73(b)(2)	B.	The location of each hazardous waste managed at the on-site or off-site facility.	Yes	No
264.73(b)(3)	C.	Copies of facility specific waste analysis as required by Section 264.193, 264.225, 264.252, 264.273, 264.345, 264.375, and 264.402.	Yes	No
264.73(b)(3)& 264.13	D.	Written results of all chemical/Physical analyses of each waste treated, stored, or disposed of at the facility.	Yes	No
264.73(b)(4)	E.	Summary reports of incidents requiring implementation of the contingency plan.	Yes	No N/A
264.73(b)(5)& 264.15(d)	F.	Records and results of all inspections (See #5) in an inspection log or summary.	Yes	No
264.73(b)(6)	G.	Results from groundwater monitoring (For surface impoundments, land treatment or land disposal facilities).	Yes	No

264.73(b)(7) H. Closure cost estimate (Yes) No

I. Post Closure cost estimate (land disposal facilities only) (Yes) No

264.112 15. Does the TSD facility operator maintain an updated copy of the ~~approved~~* closure and post closure plan at the facility? *Closure plan under approval process. (Yes) No

264.142(b) 16. Has the owner/operator adjusted the closure/post closure estimate within 30 days after each anniversary of the date on which the first cost estimate was made? (Yes) No

17. Does the TSD facility receive waste from off-site generators? Yes (No)

If yes, does the operator implement the following procedures: N/A

A. Inspect or analyze incoming wastes and compare with manifest for each shipment received at the facility. Yes No

B. Specify procedures in the waste analysis plan to carry out 17A. Yes No

C. Sign and date all manifest copies? Yes No

D. Return copies of the manifest to the generator and transporter? Yes No

E. Retain copies of all manifests at the facility for three years? Yes No

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Question 18 applies to surface impoundments, land treatment and land disposal facilities.

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18. The inspector should check for the following conditions at the TSD facility:

A. Open fires Yes (No)

B. Fumes or gases Yes (No)

C. Leaks or corrosion in containers or other storage structures Yes (No)

D. Leachate to receiving streams Yes (No)

E. Malfunction of equipment Yes (No)

F. Bulging drums Yes (No)

G. Excessive heat generation from storage facilities, lagoons, storage piles, etc. Yes (No)

19. Please provide detailed comments and explanations on specific checklist items or problems encountered during the TSD facility inspection. For instance, industry requests for clarification of specific rules and regulations and their applicability at the facility can be noted below or described in a separate memo attached to the inspector's checklist.

None.

HAZARDOUS WASTE CHECKLIST FOR USE AND MANAGEMENT OF CONTAINERS

(Subpart I Section 264.170)

Name of Facility: occidental chemical corporation

Address: River Road & Governor Lea Boulevard
Delaware city, DE 19706-1550

EPA Generator ID Number: DED 00 3913 266

Facility Inspection Representative: Richard Timmons

Title: Technical Manager

Telephone Number: (302) 834-3942

Inspection File

Name/No.:

Reviewer:

Date Reviewed:

Form "I"

The questions contained in this checklist apply to owners and operators of all permitted hazardous waste facilities that store containers of hazardous waste, except as Section 264.1 provides otherwise.

264.171	1. Are all containers in good condition; i.e., not showing signs of leakage or corrosion or any other deterioration/deformation?	Yes	No
264.172	2. Are containers lined or made of materials compatible with hazardous wastes placed into them so that the container will not react or corrode with the hazardous wastes?	Yes	No
264.173(a)	3. Are all containers holding hazardous waste kept closed during storage?	Yes	No
264.174	4. Are areas where hazardous waste containers are stored inspected by the owner/operator at least once a week?	Yes	No
264.15(b)&(d)	5. Is an inspection log maintained (see question #5 of TSD checklist)?	Yes	No
	FOR CONTAINERS HAVING FREE LIQUIDS:		
264.175(b)(1)	6. Is the containment system underlying the containers free of cracks or gaps and sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed?	Yes	No
264.175(b)(2) & (c)(1)	7. Is the base sloped or is the containment system operated to drain and remove liquids resulting from leaks, spills, or precipitation; or are the containers elevated or otherwise protected from contact with accumulated liquids?	Yes	No
264.175(b)(4)	8. Is run-on into the containment system prevented?	Yes	No
	If not, does the containment system have sufficient excess capacity in addition to 10% of the volume of containers, to contain any run-on which might enter the system?	Yes	No

264.175(b)(5)	9. Is spilled or leaked waste and accumulated precipitation removed from the sump or collection area in a timely manner to prevent overflow of the collection system?		(Yes)	No
264.176	10. Are containers holding ignitable or reactive waste located at least 50 feet from the facility's property line?	N/A	Yes	No
264.177(a)	11. Are incompatible wastes placed in the same container? (See Appendix 5 for examples.)		Yes	(No)
264.177(c)	12. Are storage containers holding hazardous wastes which are incompatible with nearby materials stored in containers, tanks, piles, or surface impoundments separated by dikes, berms, walls, or other devices? separate areas designated.		Yes	(No)
	FOR CONTAINERS NOT HAVING FREE LIQUIDS:			
264.175(c)(2)	13. Are containers elevated or otherwise protected from contact with accumulated liquid (precipitation)? Placed on wooden pallets.		(Yes)	No

Inspector's Name: Jay Brahmbhatt

Title: Environmental Engineer

Agency: DNREC

Office Location: DOVER

Date: 12/15/89

HAZARDOUS WASTE CHECKLIST FOR TANKS

(Subpart J Section 265.192 - "General Operating Requirements")

Name of Facility: Occidental chemical corporation

Address: River Road & Governor Lea Boulevard
Delaware City, DE 19706-1550

EPA Generator ID Number: DED 00 39 13 266

Facility Inspection Representative: Richard Timmons

Title: Technical Manager

Telephone Number: (302) 834-3942

Inspection File

Name/No:

Reviewer:

Date Reviewed:

Form "J"

The questions contained in this checklist apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as Section 265.1 provides otherwise.

265.17(b)	1. Are all tanks in good condition, i.e., not showing of leakage, corrosion, or any other deterioration?	(Yes) No
265.192(b)	2. Are tanks lined or made of materials compatible with hazardous waste or treatment reagents placed into them so that the tank will not rupture, leak or corrode, or otherwise fail before the end of its intended life?	(Yes) no
265.192(c)	2. Are uncovered tanks operated to ensure a minimum of 2 feet of freeboard?	N/A Yes No
265.192(c)	4. If not, is the tank equipped with a containment structure (e.g., dike or trench), a drainage control system, or a diversion structure (e.g., standby tank) with a capacity that equals or exceeds the volume of top 2 feet of the tank? covered	N/A Yes No
265.192(d)	5. Are tanks with continuous inflow of hazardous wastes equipped with a means to stop this inflow (e.g., waste feed cut-off system or by-pass to a standby tank)? Batch flow	N/A Yes No
265.193(a)(1)(2)	6. Are waste analysis conducted or written documentation obtained before placing a substantially different hazardous waste into a tank used for storage or treatment? Same CCLA material	N/A Yes No
265.194(a)(1)	7. Are daily inspections conducted for discharge control equipment (e.g., by-pass systems, waste feed cutoff systems and drainage systems)?	(Yes) No
265.194(a)(2)	8. Is data gathered from monitoring equipment (e.g., pressure and temperature gauges) at least once each operating day?	(Yes) No
265.194(a)(3)	9. Is the level of waste in the tank checked at least once each operating day?	(Yes) No

265.194(a)(4)	9.	Is (are) the tank (or tanks) inspected weekly to detect corrosion or leaking of fixtures or seams?	(Yes) No
	10.	Are the results of these inspections recorded in an inspection log or summary?	(Yes) No
265.198	11.	Are ignitable or reactive wastes stored in tanks? If so,	Yes (No)
265.198(a)(1)		a) Is the waste treated, rendered, or mixed before or immediately after placement in the tank so that the resulting waste, mixture, or dissolution of materials no longer meets the definition of ignitable or reactive wastes under Parts 261.21 or 261.23 of the RCRA Regs?	Yes No
265.198(a)(2)		b) Is the waste stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react?	Yes No
26)8(b)		c) Is the owner/operator of a facility which treats or stores ignitable or reactive wastes in covered tanks in compliance with the National Fire Protection Association's (NFPA's) buffer zone requirements for tanks contained in tables 2-1 through 2-6 of the "Flammable and Combustible Code - 1977"?	Yes No

Inspector's Name: Jay Brahmbhatt

Title: Environmental Engineer

Agency: DNREC

Office location: DOVER

Date of Inspection: 12/15/89

Inspector's Name:

Title:

Agency:

Office location:

Date of Inspection:

HAZARDOUS WASTE CHECKLIST FOR SURFACE IMPOUNDMENTS

(Subpart K Section 264.221 "Design & Operating Requirements"

Name of Facility: Occidental chemical corporation

Address: River Road & Governor Lee Boulevard

Delaware city, DE 19706-1550

EPA Generator ID Number: DED 003913 266

Facility Inspection Representative: Richard Timmons

Title: Technical Manager

Telephone Number: (302) 834-3942

Inspection File Name/No.:

Reviewer:

Date Reviewed:

Form "K"

The questions contained in this checklist apply to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as Part 264.1 provides otherwise.

Regulations		
264.221(a)	1. a) Does the surface impoundment have a synthetic liner?	(Yes) No
	b) Is there signs of deterioration in the liner system? (i.e. protective cover)	Yes (No)
(c)	2. Is the surface impoundment maintained and operated to prevent overtopping? (i.e. 2' minimum freeboard)	(Yes) No
(d)	3. Are the dikes maintained to prevent failure?	(Yes) No
(e)	4. Specific operating requirements of Permit (Contact Permit Writer or read permit prior to inspection)	N/A (Interim status)

264.226(b)	5. a) Is there a weekly inspection log kept?	(Yes) No
	b) Does this inspection log meet requirements of the permit?	Yes No N/A
264.228 (b)	6. Does this facility have closed units?	Yes No
	If yes:	
	a) Is the final cover adequately maintained?	Yes No (N/A) under closure
	b) Is the groundwater monitoring system maintained?	(Yes) No N/A
264.229	7. Does this facility store or dispose of ignitable or reactive waste?	Yes (No) N/A
	If yes:	
	a) Is the waste treated, rendered, or mixed to make the final waste not ignitable or reactive?	Yes No N/A
	b) Are all necessary precautions taken to prevent ignition or reaction?	Yes No N/A
264.230	8. Does this facility store or dispose of incompatible wastes?	(Yes) No N/A
	If yes:	
	a) Are incompatible wastes segretated?	(Yes) No N/A
	b) Are incompatible wastes treated to render waste compatible?	Yes (No) N/A shipped off for off-site disposal.

Inspector's Name: Jay Brahmbhatt

Title: Environmental Engineer

Agency: DNREC

Office Location: DOVER

Date of Inspection: 12/15/89

Inspector's Name: _____

Title: _____

Agency: _____

Office Location: _____

Date of Inspection: _____