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INTERIM
SITE CLOSE-OUT REPORT

for the

GOLD COAST OIL SUPERFUND SITE
MIAMI, FLORIDA
JUNE 1992

U. S. Environmental Protection Agency, Region IV
345 Courtland Street, N.W.
Atlanta, Georgia 30365

EXECUTIVE SUMMARY

This Interim Site Close-Out Report provides a technical demonstration of how the remedy at the Gold Coast Oil Superfund Site ("the Site"), satisfies the completion of construction requirements set forth in the applicable EPA guidance. This action was undertaken pursuant to a Consent Decree between the United States and fourteen Potentially Responsible Parties (PRPs). The Decree was entered in the U.S. District Court, Southern District of Florida, on September 22, 1988.

The U.S. Environmental Protection Agency (EPA), Region IV, and the State of Florida Department of Environmental Regulation (FDER) have reviewed the design and implemented remedy, and determined that the remedy has been completed as envisioned in the Record of Decision (ROD), with the exception of final achievement of the cleanup criteria for some of the groundwater contaminants. The groundwater treatment system will continue to operate until EPA determines that the cleanup criteria set forth in the ROD for the groundwater have been fully achieved. This Interim Site Close-Out Report addresses site conditions, quality assurance and quality control, performance monitoring, long-term operation and maintenance (O&M), five year review requirements, and the protectiveness of the remedy.

All completion requirements for this site have been met as specified in Office of Solid Waste and Emergency Response (OSWER) Directives 9320.2-3A, 9320.2-3B, and 9320.2-3C. Specifically, review and approval of the Notice of Completion and Remedial Action Report, along with site inspections, verify that all actions specified in the ROD have been implemented. All soil remediation and non-hazardous waste removal is complete and groundwater contamination has been significantly reduced. Contaminated groundwater will continue to be treated under the terms of the Consent Decree until all cleanup criteria specified in the ROD have been achieved.

FDER and EPA Headquarters have reviewed and commented on the Interim Site Close-Out Report. Once the groundwater cleanup criteria have been fully met and the site no longer poses a threat to human health, welfare or the environment, a Site Close-Out Report will be issued and the NPL deletion process initiated. Since after the completion of the groundwater remediation no hazardous wastes will remain on the site, a five-year review will not be required. O&M assurance has been provided for through the Consent Decree.

Approved By:

Patrick M Tobin

for Greer C. Tidwell, Regional Administrator

JUN 23 1992

Date

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1.0 SUMMARY OF SITE CONDITIONS

1.1 Background

The Gold Coast Oil Site is the former location of an oil reclamation facility that operated over an 11-year period. The Site is approximately two acres in size and is located in a commercial/industrial/residential area of Miami, Florida. Poor material handling processes and improper disposal of wastes resulted in extensive contamination of surface and subsurface soils at levels that posed a threat to human health, welfare and/or the environment. The underlying Biscayne aquifer, a sole source of drinking water for Dade County, was also extensively contaminated at levels in excess of Federal and State Drinking Water Standards. Concern for the potential threat to the public and impact on the local drinking water supply prompted the inclusion of the site on the National Priorities List (NPL) in September 1983.

1.2 Remedial Planning Activities

Gold Coast Oil Corporation formerly leased the property, now considered the Site, from CSX Transportation, Inc. during the 1970's. During this period, Gold Coast Oil Corporation and Solvent Extraction, Inc. conducted operations onsite that primarily included the distillation of waste solvents for reclamation. Wastes from the distillation processes were discharged directly onto the ground. Still-bottom wastes from the distilling operations were stored in a tank truck. Approximately 2500 corroded and leaking drums of sludges from the distilling operation, contaminated soils, and paint sludges were also stored onsite. Other hazardous wastes were stored in numerous horizontal tanks. All wastes generated during the solvent reclamation processes were stored onsite; no wastes were shipped for off-site disposal during the 11-year operating period.

In April 1980, representatives of the Dade County Department of Environmental Resources Management (DERM) collected samples of the illegally dumped and stored sludges, along with samples from on-site wells at the Site. Subsequently, DERM issued a Notice to Correct a Waste Dumping Violation.

EPA conducted a sampling investigation of the site in June 1981. Samples were collected from on-site water supply wells, stained surface soils, and waste material. Results from the soil and waste sampling indicated the presence of numerous volatile and semi-volatile organic compounds with concentrations ranging in the hundreds to thousands of parts per million. Similar concentration levels of metals such as lead, chromium, and copper were also detected. Concentrations for metals also ranged from the hundreds

to thousands of parts per million. Results from analysis of the groundwater samples indicated the presence of six chlorinated volatile organic compounds. The highest level reported was for 1,2-trans-dichloroethylene at 67 parts per billion (ppb). The total depth of the well from which this sample was collected was approximately 60 feet below land surface; however, this well has since been abandoned. A complete summary of the results of the sampling can be found in the EPA Hazardous Waste Site Investigation Report (June 1981).

In December 1981, an earth resistivity survey was conducted by the EPA Field Investigation Team contractor. The survey identified the presence of an anomaly which was interpreted as a plume of groundwater contamination from the Gold Coast Oil Site.

In early 1982, DERM, with the assistance of FDER, began to prepare an enforcement case against the property owner, the CSX Transportation Company, as well as the Gold Coast Oil Corporation. CSX Transportation was also advised that EPA was going to undertake the immediate removal of the hazardous waste onsite pursuant to Sections 104 and 106 of the Comprehensive Environmental Response, Compensation and Lability Act of 1980 (CERCLA). Neither of these actions were undertaken since CSX Transportation, Inc. evicted Gold Coast Oil from the property in June 1982 and agreed to voluntarily clean up the site under CERCLA. In July 1982, CSX Transportation submitted to EPA for approval a cleanup and disposal plan to address surface contamination (e.g., drums, sludges, soils) at the site.

The cleanup action of the surface contaminants at the Site was undertaken the following month. The cleanup was conducted by Chemical Waste Management under contract to CSX Transportation, Inc. An EPA representative was onsite during the removal to oversee the work. The cleanup involved removing the drums, emptying the storage tanks and excavating and removing contaminated soils to a depth of approximately six inches. During these activities, five tank truck loads of contaminated bulk liquids; 670 cubic yards of contaminated sludges and soils; and 2,500 re-packaged leaking drums were removed from the Site for proper disposal.

In March 1983, the FDER requested that EPA take the lead in the assessment and permanent cleanup of the Site. The Site was later added to the NPL with an HRS score of 46.50. A Remedial Action Master Plan (RAMP) was subsequently developed by NUS Corporation under an EPA contract. In March 1984, BCM Eastern, Inc., consultants for the PRP Steering Committee formed for the cleanup, conducted an "Environmental Investigation of the Gold Coast Site". The investigation included the installation and sampling of 13 permanent groundwater monitoring wells and the collection of 17 soil and waste samples. Groundwater monitoring wells were installed to monitor the water quality near the surface of the

aquifer and at an intermediate level (i.e., 40-46 feet below land surface (bls)) in the aquifer. Results from the analysis of the groundwater samples indicated extensive groundwater contamination with many of the contaminant levels well in excess of Federal and State Drinking water standards. The highest levels of contamination were reported in samples collected from the upper portion of the aquifer with the total concentration of chlorinated volatile organic compounds (VOCs) exceeding 15,000 ppb. Contamination was also reported in groundwater samples collected at intermediate levels within the aquifer with the total concentration of chlorinated VOCs exceeding 1000 ppb. Results from the analysis of the soil and waste samples also indicated the presence of extensive contamination from organic compounds and metals. A complete summary of the investigation can be found in the BCM Eastern, Inc. Environmental Investigation Report (March 1984).

In June 1984, a "Draft Remedial Alternatives Evaluation Report for the Gold Coast Oil Corporation Site" was produced by Engineering-Science under an EPA contract. This effort included the evaluation of five remedial alternatives to control the leaching of contaminants from the soil into the groundwater and four remedial alternatives to remediate the contaminated groundwater. The preferred alternative for the soil included excavation and onsite treatment or offsite disposal. The preferred alternative for the groundwater included recovery of groundwater through an on-site well, on site treatment via air stripping, and disposal of the treated groundwater onsite through injection or offsite at a local publicly owned treatment works (POTW). In May 1985, BCM Eastern, Inc. developed a "Selection of Remedial Approach" report for the PRP Steering Committee. BCM Eastern, Inc., concurred with the preferred alternative for soil and waste remediation. With regard to groundwater remediation, BCM Eastern, Inc. preferred recovery of the contaminated groundwater, pre-treatment via air stripping, and disposal of the water at a Dade County POTW. Results from an area-wide cleanup strategy known as the Biscayne aquifer study were also used in the evaluation of cleanup alternatives and establishment of cleanup criteria.

In June 1985, a public meeting was held, and EPA presented the findings of various studies used to evaluate the feasibility of various cleanup alternatives and the Agency's preferred alternative. The meeting was primarily attended by individuals from the community and the potentially responsible parties. It was announced at the meeting that EPA would accept public comments on the preferred alternative and the various supporting documents. Public comments received focused on the effectiveness of the remedy and liability. All of the comments were address by EPA in a Responsiveness Summary which was included as an appendix to the ROD.

EPA conducted additional sampling at the Site in July and August 1986 to assess the current conditions. The results tended to

confirm the findings from the 1984 BCM Eastern, Inc. investigation. In September 1986, a survey of private drinking water wells was conducted by Camp, Dresser and McKee, Inc., (CDM) under an EPA contract. Very few private drinking water wells were identified from the survey. The primary source of drinking water is the Alexander Orr Wellfield located approximately three miles southwest of the Site. In December 1986, a "Gold Coast Oil Site Endangerment Assessment" (EA) report was developed by CDM. The EA report concluded that the primary threat posed by the Site was the potential risk to human health due to the contaminated groundwater. A secondary concern was the potential risk to human health due to exposures to elevated levels of lead in the surface soils.

As part of the development of cleanup alternatives, a "Gold Coast Oil Soil Cleanup Levels" report and a "Cost Estimate Report Gold Coast Oil Site" were prepared by CDM and submitted to EPA in January and February 1987, respectively. Information gained through these studies was used by EPA in the development of a preferred remedial alternative and the establishment of cleanup criteria. Although a formal Remedial Investigation and Feasiblity Study (RI/FS) was not conducted pursuant to current EPA guidelines, EPA determined that the preceding studies substantively met the requirements of an RI/FS.

Based on the findings of various studies to date, public comment, and consultation with FDER and DERM, EPA issued a ROD for this site on September 11, 1987. The selected remedy in the ROD included the excavation and off-site disposal of contaminated soil and hardened sludges; contaminated soils remaining onsite were to be stabilized/solidified. Contaminated groundwater was to be collected via a recovery wellfield, treated, and disposed in a manner consistent with the treatment alternative. The selected remedy also called for the removal of debris remaining at the site and abandonment of an on-site water supply well. A final component of the ROD was long-term monitoring of the source control and groundwater to ensure the cleanup remains protective.

Groundwater cleanup levels were specified in the ROD for a select number of organic compounds including the following: 1,1-dichloroethane (5.0 ppb); trans-1,2-dichloroethylene (70.0 ppb); methylene chloride (5.0 ppb); tetrachloroethylene (0.7 ppb); toluene (340.0 ppb); and trichloroethylene (3.0 ppb). Lead was identified as the constituent of concern for source control. The soil cleanup level for lead was set at 100 parts per million (ppm).

Subsequent to the issuance of the ROD, EPA negotiated an agreement with 14 PRPs to implement and finance the remedy specified in the ROD. Consent Decree negotiations were completed in May 1988 and the Decree was entered by the U.S. District Court, Southern District of Florida, on September 22, 1988. Consultants for the Steering Committee then began development of the Remedial Design (RD).

The RD was accomplished in three stages. The initial stage included the development of an RD/RA Work Plan by Environmental and Energy Consultants (EEC) in January 1989 to address the soil remediation. This was followed by the development of a Well Installation Plan and RD/RA Work Plan for Groundwater Recovery, Treatment, & Discharge by the Baljet Corporation/Edward E. Clark Engineers-Scientists, Inc. in January 1990 and April 1990, respectively. The work plans for the groundwater remediation were later supplemented in June 1991 for further characterization of the groundwater.

1.3 Remedial Construction Activities

1.3.1 Soil Remediation

Remedial construction activities began in February 1989 with the removal of non-hazardous materials (e.g., empty metal tanks, scrap metal, abandoned buildings, and vegetation) in preparation for the soil remediation work. Soil remediation began in March 1989, with the excavation and offsite disposal of the contaminated soils and hardened waste sludges. A total of 683 tons of contaminated soils and hardened waste sludges were removed from the Site under the oversight of EPA. The waste material was considered hazardous and, therefore, was shipped to Chemical Waste Management's hazardous waste disposal facility in Emille, Alabama. This facility is approved by EPA under the Resource Conservation and Recovery Act for the disposal of hazardous waste.

Following the soil removal, all concrete pads were scraped and steam cleaned, and necessary repairs were made to the chain link fence surrounding the site. Subsequently, the surface soils were re-sampled to assess whether the 100 ppm cleanup level for lead had been achieved. Results from analysis of these samples indicated several areas on the Site would require additional soil removal to achieve the cleanup criteria.

In March 1990, additional soil removal took place at the site. Most of the remaining soil (about 200 cubic yards) overlying the Miami oolite was removed. In the vicinity of the site, the Miami oolite can be characterized as dense limestone layer, 10 to 15 feet in thichness, occuring at or near the ground surface. Analysis of the material removed indicated that it did not constitute a hazardous waste as defined under the Resource Conservation and Recovery Act. As a result, the soil was disposed of locally at the South Dade Landfill, Dade County, Florida.

Surface soils at the site were re-sampled in February 1990 to assess whether the soil cleanup criteria had been achieved

through the last soil removal effort. With the exception of one location, all of the samples indicated lead levels below the 100 ppm ROD criterium. The one exception indicated the presence of lead at a level of 204 ppm. In the area where this sample was collected, the soil overburden had been removed down to the top of the Miami oolite (i.e., rock surface). Although analysis of particles of the rock surface indicated the presence of lead above the cleanup level, all of the contaminated soil had been removed from this area. As a result, this area was also judged by EPA to be in compliance with the ROD cleanup criteria. With the completion of the last soil verification effort, EPA concluded that the soil cleanup was complete. The ROD had included a requirement for stabilization and/or solidification of contaminated soils and waste remaining on the site at levels above the 100 ppm cleanup level for lead. However, since all contaminated soils and wastes in excess of the 100 ppm cleanup level were removed from the site, neither stabilization nor solidification was required.

1.3.2 Groundwater Remediation

A wellfield consisting of 21 monitoring wells was constructed for the assessment and subsequent recovery of the volatile organic compounds (VOCs) identified in the groundwater at levels in excess of the cleanup criteria. The wellfield also provided the required monitoring and groundwater injection. Well installation occurred in three stages, thus allowing information gained from each successive stage to provide refinement for the next phase of well installation.

Monitoring wells were installed at various screened intervals to provide sampling and groundwater recovery at various depths, both on-site and off-site. The first thirteen groundwater monitoring wells (numbers MW-1 through MW-13) were installed during the initial stages and provided valuable information on the nature and location of groundwater constituents. A computer model using information gained from the early wells was used to predict groundwater flow and constituent migration during groundwater remediation efforts. The results of the computer modelling influenced the choice of locations for the remaining wells. The next seven monitoring wells were installed in February 1990 to provide for recovery of the contaminated groundwater, disposal of the treated groundwater, and monitoring of the cleanup progress. The rationale for well design and well location is explained in detail in the Final Well Installation Plan (January 1990)

Along with the installation of a network of wells for monitoring, recovery and disposal, a groundwater treatment system was designed to treat groundwater to a quality that

meets the Biscayne Aquifer water quality standards. Treatment of the water is performed by two towers packed with a special material that greatly enhances air to water ratio and the ability to "strip" the VOCs from the groundwater water (i.e., air stripping). The system also includes two holding tanks and a number of pumps and valves arranged to provide maximum system flexibility and optimum groundwater treatment with built-in fail-safe systems. The design rationale, design details, operation and maintenance plan and other supportive information for the system are provided in the "Remedial Design/Remedial Action Groundwater Recovery Treatment and Discharge" (February 1990).

During the course of the Remedial Design, it was determined that recharge to the aquifer was the only acceptable option for disposal of treated groundwater. Dade County Department of Environmental Resources Management (DERM) objected to any discharge of the treated groundwater through a POTW. Since the county considers groundwater a resource of Dade County, they felt that the treated groundwater should be discharged back into the groundwater to preserve the resource and avoid any net loss of water from the aquifer. As a result, the design incorporated a system for the injection of the treated groundwater into the aquifer onsite. The injection well was also positioned such that it aided in the confinement of the groundwater plume and groundwater recovery process.

Groundwater recovery, for the purposes of treatment, has primarily been through an onsite well, MW-20. To enhance the efficiency of the recovery system, monitoring wells MW-11 and MW-13 were modified to also be used as recovery wells. Groundwater recovery occurred temporarily in monitoring well MW-16 when contaminant levels increased in this well after the installation of a nearby well. Approval has been granted by EPA to also use wells MW-8 and MW-10 as recovery wells, as needed. Since the start of the groundwater recovery, treatment, and disposal system in July 1990, over 40,000,000 gallons of water have been treated and returned to the aquifer. Concentrations of VOCs in the aquifer have been significantly reduced. Concentrations for most of the contaminants are now near or below the cleanup criteria specified in the ROD.

During the drilling of the second phase of wells, the Steering Committee for the Settling Defendants raised concerns about drilling a deep well that would penetrate what was believed by the Steering Committee to be a confining layer that separated the upper (i.e., sand) and lower (i.e., limestone) portions of the aquifer. The Committee and EPA entered into a dispute resolution process that culminated in a final decision issued by EPA on April 12, 1991, and amended on May 23, 1991, to require the installation of the deep monitoring well (MW-21).

Based on the Steering Committee's belief that a confining layer separated the upper and lower portion of the aquifer, the design of MW-21 centered around precautionary measures to prevent the transport of contaminants into the lower portion of the aquifer during the well drilling operation. These procedures were detailed in the "Work Plan for Installation of Monitoring Well MW-21 (June, 1991). EPA concluded from the sampling results that the lower (i.e., limestone) portion of the aquifer had not been impacted by the site.

However, during the drilling of the borehole for MW-21, some downward transport of contaminants within the sand portion of the aquifer apparently occurred. Shortly after the installaiton of MW-21, low levels of contaminants identified in the ROD for cleanup were detected in a nearby monitoring well, MW-16. This well had been previously remediated as part of the cleanup. The low level contamination was removed within a short period by pumping from MW-16 and treating the water onsite. The well now indicates levels below the cleanup criteria for all of the ROD parameters.

After over a year of groundwater recovery and treatment, two monitoring wells were modified to increase the efficiency of the groundwater recovery system. Monitoring wells MW-11 and MW-13 were enlarged from 2-inch to 4-inch diameter wells along with the installation of the necessary equipment to recover the water for treatment. Monitoring well MW-18 was also approved as a second injection well for treated effluent to compensate for the increase in the volume of contaminated water recovered for treatment. The resizing of monitoring wells MW-11 and MW-13 and the use of MW-18 as a second injection well were approved by EPA in August 1991 and implemented during the construction of monitoring well MW-21.

1.3.3 Decommissioning of Onsite Supply Well

The on-site supply well was sampled in February 1989. The well was abandoned during the well drilling activities of February 1990 (Final Well Installation Plan, January 1990). The casing was cut off below ground surface and the well was filled with grout.

1.4 Community Relation Activities

While public interest regarding the water quality of the Biscayne aquifer is typically high, community involvement in the Gold Coast Oil site was limited. Nevertheless, EPA conducted community relations activities in an effort to keep the community and local and state officials apprised of the site activities and pertinent developments.

In June 1985, a public meeting was held, and EPA presented the findings of various studies used to evaluate the feasibility of various cleanup alternatives and the Agency's preferred alternative. The meeting was primarily attended by individuals from the community and the potentially responsible parties. It was announced at the meeting that EPA would accept public comments on the preferred alternative and the various supporting documents. Public comments received focused on the effectiveness of the remedy and liability. All of the comments were address by EPA in a Responsiveness Summary which was included as an appendix to the ROD.

Other community relations activities included the periodic publishing of newsletters and fact sheets, issuance of press releases, and solicitation of public comment on key documents. The community will also be apprised of the completion of the cleanup, the schedule for deletion of the site from the NPL, and the schedule for long-term groundwater monitoring.

2.0 QUALITY ASSURANCE AND QUALITY CONTROL

Various Remedial Design and Remedial Action documents were generated and implemented by the consultant for the PRP. These documents not only contained plans for the design, construction, implementation, and operation and maintenance of the system, but rigorous quality control and quality assurance (QA/QC) procedures to be followed throughout the course of the project. These documents were prepared in accordance with EPA QA/QC procedures and protocols. Accordingly, only EPA analytical methods, or where no EPA methods existed, other Federally approved methods, were used in the analysis of soil and water quality samples. Each of these documents were carefully reviewed by EPA and the state of Florida. Once acceptable, the documents were approved by EPA for implementation.

Analysis of environmental samples was performed by a local laboratory contracted by the PRP. Only EPA approved analytical methods and protocols were employed. For QA/QC purposes, EPA periodically split samples with the PRPs laboratory and provided the laboratory with blank (i.e., clean) and spike (i.e., dirty) samples to assess the performance of the laboratory. Results from the analysis of these samples were acceptable.

During construction activities, an EPA representative was onsite to oversee the work being performed and ensure compliance of the work with the applicable QA/QC documents. The work performed was found to be in general compliance with the work specified in the RD/RA Work Plans. The QA/QA program utilized throughout the remedial action was sufficiently rigorous and was adequately complied with to enable EPA to determine that all analytical results and construction activities were acceptable.

3.0 PERFORMANCE MONITORING

Assessment of the performance of the remedial action was based on soil, groundwater, and air monitoring. Cleanup levels for soil and groundwater were established in the ROD. Periodic air monitoring was also conducted to ensure that emissions from the air stripping process did not exceed local ambient air quality levels.

Cleanup levels for soils were set at 100 ppm for lead. As discussed in Section 1.3.1, all onsite soils with contamination above the 100 ppm cleanup criteria were excavated for offsite disposal. The success of the cleanup was demonstrated through the collection and analysis of a sufficient number of surface soil samples considered to be representative of the soil conditions.

Cleanup levels for the groundwater were set as follows: 1,1 dichloroethane (5.0 ppb); trans-1,2-dichloroethylene (70.0 ppb); methylene chloride (5.0 ppb); tetrachloroethylene (0.7 ppb); toluene (340.0 ppb); and trichloroethylene (3.0 ppb). The progress for the groundwater cleanup is assessed on a monthly basis by the PRPs through the collection and analysis of groundwater samples for the ROD parameters. On a quarterly basis, an EPA representative is onsite to obtain a split of two of the groundwater samples for QA/QC purposes. The results from the performance monitoring since the activation of the system are provided in the Remedial Action (RA) Report.

Figure 1 depicts an overall trend in the decrease of groundwater contamination since the initiation of the cleanup. Note that the trend shown in this figure is based on a average concentration for contaminants detected at the site. Actual concentrations for contaminants reported in individual wells may be reviewed in the RA Report. As an indication that the cleanup criteria specified in the ROD are close to being achieved, a summary of groundwater monitoring results for the period of December 1991 through March 1992 for key indicator wells is provided in Table 1. Figure 2 denotes monitoring well locations.

Ambient air quality was monitored on a monthly basis with a portable photoionizaion detector (HNu). Results from the monitoring indicated that the emissions were within local air quality standards.

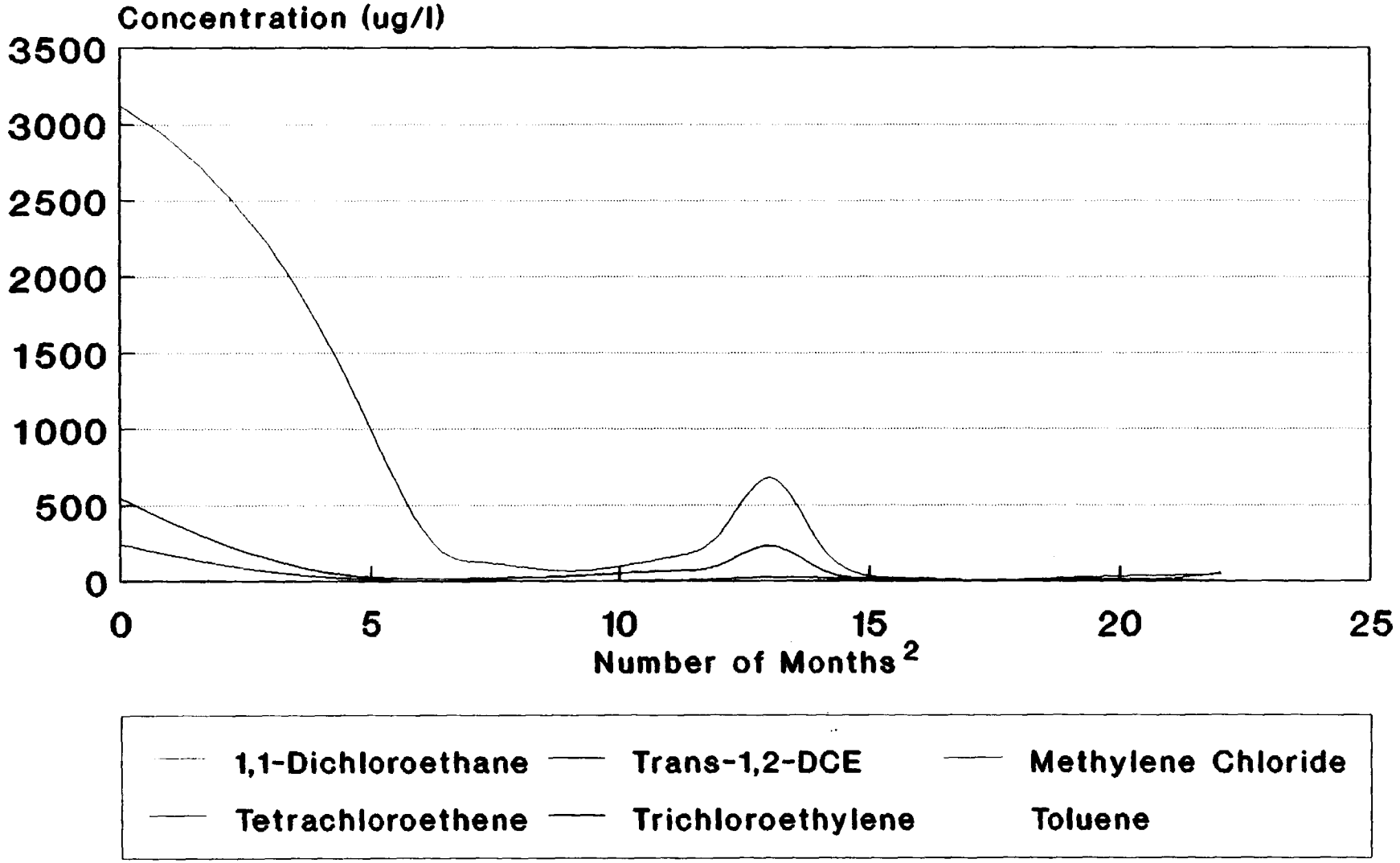
4.0 CLEAN CLOSURE ASSESSMENT

All implementation and construction activities at the Gold Coast Oil site are complete. Cleanup of the contaminated soil has been completed, and groundwater contamination has been significantly reduced since the initiation of the groundwater recovery, treatment and disposal system. Among the 21 on-site wells, cleanup levels as

Trends in Chemical Concentrations [1]

Gold Coast Oil NPL Site
Miami, Florida

Figure 1



1 Trends are based on average chemical concentrations from monitoring wells with values reported.

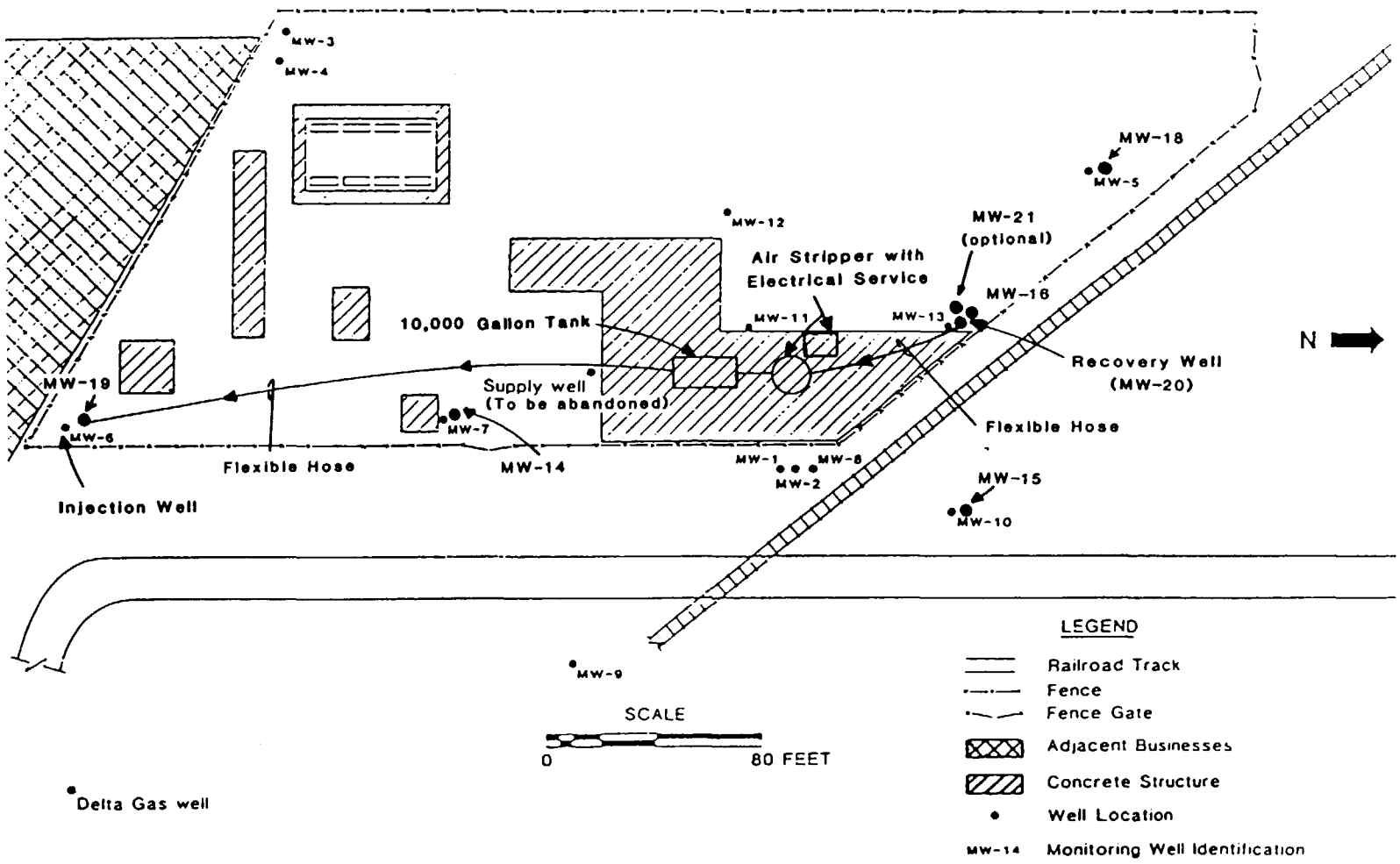
2 Number of months from start of clean-up in July 1990.

TABLE 1
GROUNDWATER MONITORING RESULTS FROM KEY INDICATOR WELLS
FEBRUARY 1992 THROUGH MAY 1992
GOLD COAST OIL SITE
MIAMI, FLORIDA

Contaminants (ppb)	Monitoring Well 11				Monitoring Well 13				Recovery Well 20				ROD Limit
	02/92	03/92	04/92	05/92	02/92	03/92	04/92	05/92	02/92	03/92	04/92	05/92	
1,1-Dichloroethane	1.7	--	--	--	--	--	--	--	--	--	--	--	5.0
Trans-1,2-dichloro-ethylene	--	--	--	--	--	--	--	--	--	--	--	--	70.0
Methylene Chloride	--	--	--	--	--	--	--	--	--	--	--	--	5.0
Tetrachloroethylene	5.5	0.7	0.76	--	140	64	200	7.2	25	3	3.5	2.5	0.7
Trichloroethylene	4.4	2.2	2.1	3.5	31	29	32	7	7.4	5.1	9.9	5.8	3.0
Toluene	--	--	--	--	--	--	--	--	--	--	--	--	340

Legend

ppb - Parts Per Billion
-- - Below Detection/ROD Limits



Source: GCO Well Installation Plan, April 1990

FIGURE 2
MONITORING WELL LOCATIONS
GOLD COAST OIL SITE
MIAMI, FLORIDA

set forth in the ROD have been achieved on all but a few of the wells. Based on the performance of the system thus far, the remaining wells are expected to indicate achievement of the cleanup criteria in a short period of time.

Based on EPA's experience with groundwater remediation activities at other Superfund sites, EPA has found that once the contaminant levels are achieved and pumping from the recovery wells ceases, contaminant levels often increase with time. As a result, a pre-certification monitoring period has been incorporated to ensure that the cleanup criteria have actually been achieved and that the levels do not increase with time. A plan for "clean closure assessment" was developed by the Steering Committee which incorporates periods of shutdown of the system, quarterly monitoring of certain wells, and start-up of the system, as necessary. A flow chart depicting the process for assessing "clean closure" is provided in Figure 3. The actual procedures for assessing "clean closure" are discussed in correspondence between the EPA Remedial Project Manager and the PRP Remedial Action Coordinator spanning a period from February 3 to April 7, 1992. Once the monitoring demonstrates that the cleanup levels are below the criteria specified in that ROD, EPA will issue a Close-Out Report and certify achievement of the ROD performance criteria.

5.0 POST-CERTIFICATION MONITORING

At such time as EPA certifies that performance levels have been met and are in conformance with the ROD and Consent Decree, post-certification monitoring will be initiated. The purpose of this monitoring is designed to ensure that the remedial action remains permanent and protective with time. Since the cleanup included the excavation and offsite disposal of all wastes and contaminated soils above the cleanup level established in the ROD, the scope of the post-certification monitoring will include only the long-term monitoring of groundwater.

Experience has generally shown that once the pumping of a groundwater recovery and treatment system ceases for an extended period of time, there is often an increase in the contaminant levels. The potential for this occurrence will be assessed over the short-term (i.e., maximum six month shut-down) during the pre-certification assessment for clean closure. However, based on the EPA's experience with groundwater remediations, the Agency concluded that a period of long-term post-certification groundwater monitoring is also appropriate.

This assessment will consist of annual sampling of several monitoring wells that were in the areas formerly with the highest levels of groundwater contamination and that took the longest period to achieve the cleanup level. At a minimum, the post-certification monitoring will be performed annually for two years

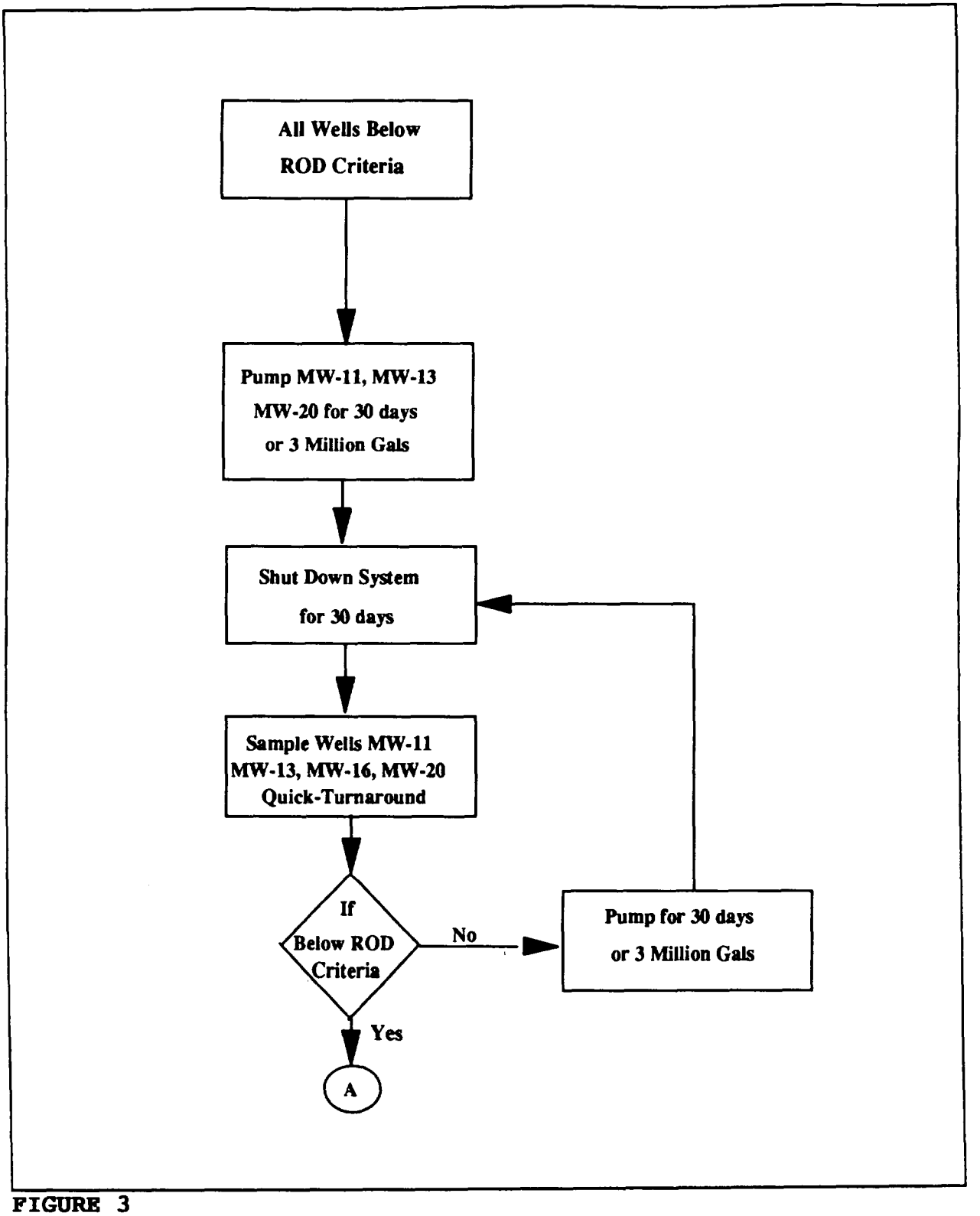


FIGURE 3
CLEAN CLOSURE FLOWCHART
GOLD COAST OIL SITE
MIMAI, FLORIDA

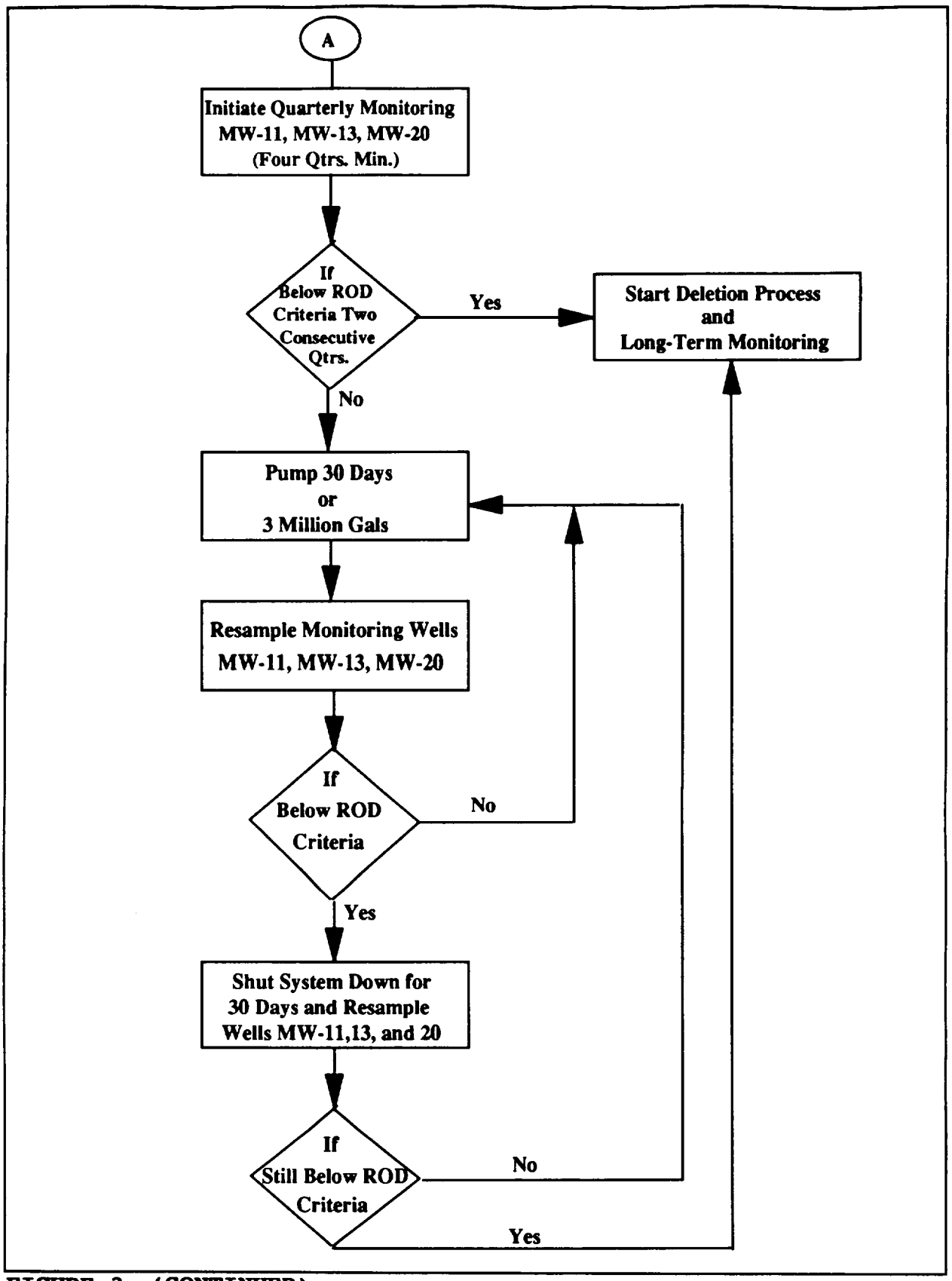


FIGURE 3 (CONTINUED)
CLEAN CLOSURE FLOWCHART
GOLD COAST OIL SITE
MIMAI, FLORIDA

from the date of EPA certification of the completion of the remedial action. Should the data indicate no significant increase in the contaminant levels relative to the findings of the "clean closure" monitoring, the post-certification monitoring may cease. However, should the post-certification monitoring show significant increases in the contaminant levels relative to the "clean closure" monitoring, EPA may extend length of the post-certification monitoring up to a period of five years and/or require additional remediation of the aquifer. The commitment by the PRP's to perform post-certification monitoring is provided for in the Consent Decree and the plans for monitoring described in a letter from the PRP's consultant to the EPA Remedial Project Manager dated April 17, 1992.

6.0 FIVE-YEAR REVIEW REQUIREMENTS

Consistent with the requirements of 121(c) of CERCLA and OSWER Directive 9355.7-02, a five-year review is not expected to be appropriate for this Site. It is anticipated that at the time of EPA certification of completion of the remedial action, no hazardous substances, pollutants, or contaminants will remain at the site which could pose a threat to human health, welfare, or the environment. Furthermore, the completion of the remedial action is expected to allow for unlimited use and unrestricted exposure at the Site. Should, however, the performance standards not be achieved within five years of the initiation of the remedial action, a five-year review may be appropriate.

7.0 PROTECTIVENESS

All completion requirements for this site, with the exception of final attainment of the groundwater cleanup criteria, have been met as specified in OSWER Directive 9320.2-3A. Specifically, confirmatory sampling has verified that the ROD cleanup objective for the soil has been achieved. The groundwater remedial action has been implemented and is close to achieving the groundwater cleanup criteria set forth in the ROD. The significant reduction in the groundwater contamination has been monitored on a monthly basis, thus providing a comprehensive database that demonstrates the success of the groundwater remediation. At such time as EPA determines that all of the cleanup criteria have been achieved, EPA will issue a Close-Out Report and initiate deletion of the site from the NPL. The only activity remaining will be long-term groundwater monitoring. A bibliography of all reports and correspondence relevant to the completion of this site under the Superfund program is attached. These documents are available for review, and arrangements for viewing the documents can be made by contacting EPA, Region IV, Planning and Information Management Unit, at (404) 347-2930.

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Edward E. Clark, Ph.D., P.E., Assistant Project Director, The

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bcc: Rick Leahy, ORC
Leslie Allen, DOJ

JACKSON	O'STEEN	LEAHY	HARRIS	MCGUIRE	ALLEN
4WD-SSRB	WMD-GTSU	ORC	ORC	4WD-SSRB	ORC
6/3/92	6/4/92	June 5 92	6/10		6/11/92

MUNDRICK	GREEN	FRANZMATHES	BARKER	TIDWELL
4WD-SSRB	4WD	4WD	ORC	ORA
6/12/92	6/15/92	6/15/92	6/12/92	PMT 6-23-92

BAJ/DISK-GOLD COAST OIL CORRESPONDENCE/CLOSEOUT.1/04-13-92