

SOLANO COUNTY GRAND JURY



Suisun Marsh Oil Spill



2004-2005 Grand Jury Report
Issued: June 28, 2005

Suisun Marsh Oil Spill 2004/2005 Grand Jury Final Report

I. Reason for Investigation

The Solano County Grand Jury decided to investigate the local government response to the April 2004 diesel spill in the Suisun Marsh because of the massive publicity the incident received. The primary concern of the Grand Jury was to determine the effect of damage to the environmentally-sensitive marsh and to review the governmental efforts to mitigate the impact on the residents of Solano County.

II. Procedure

The Grand Jury interviewed:

- California Department of Fish & Game, Office of Spill Prevention Response, Incident Commander, Environmental Scientists and Environmental Technician
- United States Coast Guard, Chief, Marine Environmental Response
- Owner of Drake Sprig Duck Club
- Owner of Arnold Ranch Duck Club
- Because of litigation between the owner of the pipeline and the State of California, the Grand Jury did not interview representatives of Kinder-Morgan or certain State officials

The Grand Jury interviewed representatives of:

- Department of Resource Management, Solano County
- Suisun Resource Conservation District
- California Environmental Protection Agency (CEPA), Regional Water Quality Control Board

The Grand Jury toured the affected area.

The Grand Jury reviewed the following documents:

- Maps of the areas that were affected by the spill
- Numerous newspaper articles
- Incident Action Plans
- Laboratory Data Sheets for waste soil samples
- *Concord to Sacramento to Petroleum Products Pipeline Project Draft Environmental Impact Report, Contra Costa, Solano and Yolo Counties, SCH #2002022010, California Fish & Game*
- *Soil, Groundwater and Surface-water, Monitoring Work Plan, KMEP Suisun Slough Release Site, Fairfield, California, 001-09253-05-001, September 28, 2004 prepared by Levine-Fricke*
- Summary of Emergency Response Activities at the KMEP Suisun Slough Release Site, Fairfield, California Volume I – 001-09253-05-001 September 17, 2004 prepared by Levine-Fricke
- *Biological Report for the Kinder-Morgan Pipeline Spill at Suisun Marsh, Roos Slough,*

Levine-Fricke Consultants Supplemental Report, April 27, 2004

- *Calculating Compensatory Restoration in National Resource Damage Assessments: Recent Experiences in California* prepared by the proceedings 2002 California World Oceans Conference, Santa Barbara, California by S. Hampton & M. Zafonte
- *Suisun Resource Conservation District (SRCD) takes action to reduce impacts to Suisun marsh wetland and wildlife resources as a result of April 27, 2004 diesel oil release.* SRCD Press release dated April 30, 2004
- *Cleanup and Abatement Order #R2-204-0054* for Kinder-Morgan Energy Partners, LP (KMEP), California Regional Water Quality Control Board
- *Metallurgical Examination of Kinder-Morgan Suisun Bay Pipeline Rupture* by Brad James of Exponent Failure Analysis Associates, Menlo Park, California

III. Background

Summary of the Incident

Kinder Morgan Energy Partners owns and operates a 14 inch diameter underground pipeline that transports refined petroleum products from KMEP's Concord terminal to their West Sacramento terminal. Approximately 70 miles traverses Solano County including a section of the Suisun Marsh. A portion of the pipeline travels through a managed wetland comprising approximately 220 acres that is operated by the owners of the Drake Sprig Duck Club. The Drake Sprig Duck Club is located adjacent to and east of a Union Pacific Railroad right-of-way. The pipeline runs through the Suisun Marsh which is an environmentally sensitive area that contains both state and federal endangered species. Additionally, there is an eight inch pipeline within the easement that runs parallel to the 14 inch pipeline. The eight inch pipe runs from the Concord terminal to the Travis Air Force Base and transports jet fuel

On April 27, 2004 at approximately 6:32 pm the owner of the pipeline discovered a drop in pressure and increased flow in the pipeline. Shutdown procedures were started immediately. This incident was not reported to the appropriate authorities on April 27 as required by California Government Code §8670.64. On April 28, 2004 at 12:19 pm after conducting additional inspections, K-M began a pressure test of the pipeline by injecting more petroleum product into the pipeline. K-M stopped pumping at 12:40 pm after an aerial crew noticed two areas of discoloration in the Suisun Marsh. This incident was finally reported to the Office of Emergency Services at 2:35 pm on April 28, 2004, approximately 20 hours after the initial pressure drop was discovered. The California Department of Fish & Game Office of Spill Prevention and Response (OSPR) responded within 30 minutes after they were notified. An Incident Command was established consisting of OSPR, United States Coast Guard, US Environmental Protection Agency (USEPA), and the owner of the pipeline.

The Executive Director of the Suisun Resource Conservation District responded and because of his rapport with the duck club owners, he was able to close immediately three gates of a channel that feeds into the Montezuma Slough and surrounding wetlands. His prompt action along with the quick response from the Fish and Game OSPR helped contain the diesel release into a controlled area.

The petroleum spill, according to a variety of sources, was later determined to be approximately 104,000 gallons of diesel. If the spill had happened during the rainy season, it could have been a disaster of major proportions which could have contaminated many Bay Area waterways. Solano County was very fortunate for

two reasons: (1) quick action of those on the scene and (2) the duck club had drained water from the affected area and was restoring the water fowl habitat for the coming duck hunting season.

Over 100 federal, state, county and contract personnel worked on clean-up efforts in this sensitive area of the Marsh using vacuum trucks, pneumatic pumps and absorbent booms and pads, and the excavation of trenches and pits to recover diesel fuel, and excavation of diesel affected soils.

According to Exponent Failure Analysis Associates and witnesses interviewed by the Grand Jury, the diesel spill was caused by a rupture that occurred in Line Section 25 (LS25) that transports liquid petroleum products from Concord terminal to the Sacramento terminal and continues on to Reno, NV. LS25 was installed in 1967, and has a nominal diameter of 14 inches and wall thickness of 0.219 inches. It was reported that the pipeline pressure at the rupture location was 950 pounds per square inch (80% of capacity) and the pipe was buried approximately four feet underground. A 48-foot section of the ruptured pipeline was delivered to Exponent Failure Analysis Associates for numerous testing procedures. The conclusion of all tests was that the pipe ruptured due to wall thinning from general corrosion. This corrosion reduced the wall thickness of the pipe from 0.219 to 0.050 inches. The area of corrosion could not withstand the operational product pressures within the pipe thereby causing the pipe to rupture.

Testimony was received from a State EPA pipeline expert that Kinder Morgan used magnetic flux leakage “Smart Pig” technology to inspect the inside of the pipe. Federal regulation mandates that this be done once every five years. However, the State EPA reported that Kinder Morgan was inspecting the pipe each year.

Following the spill, a new 20-inch pipeline was installed. The new line runs along I-680, through Fairfield and bypasses most of the Suisun Marsh. The new 20-inch line can transport an increased amount of petroleum and can be operated at 100 percent of capacity.

The Role of Solano County Resource Management Regarding the Spill:

Immediately after the spill was reported, the Solano County Resource Management Department sent two experts to the scene and they alerted the Suisun Fire Protection District. Once the Incident Command was established the Department of Resource Management continued to provide technical assistance and report what occurred to the Board of Supervisors and the public. The Department of Resource Management continued to provide assistance until the affected area was determined as cleaned by Incident Command on September 3, 2004. Finally, the County’s role after clean-up, was to follow-up and act in a support role, to receive reports, to brief the Board of Supervisors and follow-up this case with the District Attorney.

The Role of Suisun Resources Conservation District (SRCD):

The SRCD contacted the affected private landowners and took immediate action to close all water control structures at the site. This action was taken to prevent the spread of discharge of diesel oil to tidal sloughs and adjacent wetlands in the Suisun Marsh. The Executive Director of SRCD met with the Incident Command team to explain local site conditions including water control systems and levee system integrity to contain the diesel oil. SRCD also prepared detailed aerial maps to assist State and Federal agencies in the development of an action plan and impact assessment. During the clean-up operation SRCD provided assistance with product recovery logistics, obtaining access permission from local landowners, and ongoing wetland management decisions. After clean-up SRCD will continue to provide technical assistance on water management and wetland habitat needs in order to develop short and long term restoration plans.

Role of the Incident Command:

The Incident Command role was to contain the spill, to protect the safety of citizens and response/remediation personnel, to coordinate response and remediation efforts, to protect the environmentally sensitive area and to protect the endangered Salt Marsh Harvest Mouse conservation efforts. Interim remedial measures were to recover spilled materials, to mitigate economic impacts, and to keep stakeholders and the public informed of response and remedial activities. The Incident Command agencies established a Response Action Clean-up Plan, a Hazardous Waste Plan, a Hazardous Removal Plan, a Remedial Action Work Plan, and a Containment and Removal Plan along with other conservation plans

Incident Command was also responsible for the removal of damaged pipe for laboratory evaluation, for installation of 50 feet of the new pipe (completed on May 2, 2004) and for excavation and removal of diesel affected soil. The Grand Jury received numerous comments from land owners that the Incident Command ran a smooth operation. Land owners were appreciative that they and all parties were given weekly briefing as to what was happening with the clean-up.

Effects of the Spill

What took place when the diesel fuel was released? The spill flowed to the land and waterways of the Drake Sprig Duck Club property. The property is approximately 225 acres (Figure 1). This area is managed for a wildlife habitat. The entire spill appears to have been confined to that enclosed acreage. Many of the waterways within the levees (Roos Slough system) were exposed, but searches of waterways outside the property revealed no observable diesel fuel. About ten acres of salt marsh habitat immediately adjacent to the release site, designated as Area A, were contaminated with diesel to various degrees. The remainder of the contamination (designated as Area B), was associated with the margins of the waterway network by which diesel fuel spread to the other acres of the Drake Sprig Duck Club property. (Figure 2) Vigorous removal of product from the Marsh and contaminated soils continued through August 2004. As of September 2004, diesel product has been removed from the site. As of the date of this writing, treatment of contaminated soil continues to be treated by the bioremediation methods.

Diesel Fuel Hazards to Wildlife

Contact with diesel is a serious concern for wildlife. Small vertebrates can become coated with diesel which can result in symptoms ranging from irritation, to burning, to death. Larger mammals have thicker skins and are more resistant to dermal effects. Birds are very thin skinned, and the thermal protection afforded by feathers is disrupted by petroleum resulting in eventual hypothermia. Both birds and mammals tend to preen in an attempt to clean petroleum from feathers and fur which in turn results in ingestion toxicity. Diesel contact is also extremely deadly to invertebrates. Fish and Game officials advised the Grand Jury that a total of 30 birds and mammals died in this incident.

An Emergency Response and Clean-up Plan was developed for Areas A & B by the United States Fish and Wildlife Service (USFWS), the United States Environmental Protection Agency, and the Incident Command to minimize adverse effects to the State and Federally endangered Salt Marsh Harvest Mouse.

Cleanup and Monitoring Activities Continue

By September 7, 2004, all equipment had been removed from the area, since all clean-up activities had been completed. Soil and groundwater sampling continued according to approved monitoring plans. Dramatic reductions in Total Petroleum Hydrocarbons (TPH) known as diesel were observed in soil samples from both Areas A & B. In October 2004, the control of Area B was returned to the Drake Sprig Club; the club owners then flooded Area B. California Department of Fish and Game OSPR field biologists, Kinder Morgan and contractor personnel all monitored the flooded Area B for possible oil sheening events. Minimal sheening was observed. Seasonal rains had flooded Area A, where only minimal sheening had been observed. All Federal response action at the site has been concluded. The Incident Command was disbanded on November 5, 2004, and responsibility for monitoring the site was turned over to California Regional Water Quality Control Board. Kinder Morgan was issued a Clean-up and Abatement Order by the Board. Activities stipulated in the Order will continue to be undertaken with the Board's oversight. The Order also contains detailed requirements for a Wetland Mitigation Plan, Remedial Investigation Work Plan and final Remedial Action Plan, including Draft Clean-up Standards.

The California State EPA will consult with all affected agencies to ensure that post-site closure issues are resolved.

On April 26, 2005, in a plea bargain agreement, People v. Kinder Morgan, Solano County Superior Court Case No. FCR 223544, Kinder Morgan plead guilty to four misdemeanor charges; for failing to notify the Office of Emergency Services immediately on April 27th and 28th 2004, and for polluting the waters of California on April 27th and 28th 2004. Kinder Morgan Emergency Partners and its subsidiary Santa Fe Pacific Pipeline also agreed to pay more than \$5.2 million in fines, penalties, and restitution for damage caused to the habitat of the Suisun Marsh.

The Grand Jury realizes that its area of responsibility includes the Department of Resource Management and the Suisun Resource Conservation District within Solano County.

IV. Findings and Recommendations

The Grand Jury realizes that our area of responsibility includes the Department of Resource Management and the Suisun Resource Conservation District within Solano County. We do not have authority over State or Federal agencies, therefore State and Federal agencies are not required to respond to this report. Because of possible litigation, the owner of the pipeline and certain State officials were not interviewed. However, all concerned agencies are encouraged to reply if they so desire.

Finding #1 - Solano County Department of Resource Management personnel performed a multitude of tasks related to the spill clean-up operations at the initial set up, and continues through all follow-up action. This includes maintaining all reports and plans.

Recommendations #1 - The Solano County Department of Resource Management should continue to provide its excellent support in the spill area.

Finding #2 - The Executive Director of Suisun Resource Conservation District took immediate action to close all water control structures at the site. This action was taken to prevent the spread and discharge of diesel oil to tidal sloughs and adjacent wetlands in the Suisun Marsh.

Recommendation #2 - None

Finding #3 - The Suisun Resource Conservation District provided excellent support to the Incident Command Team by explaining local site conditions, water control systems, and levee system integrity to control the diesel oil. They provided detailed aerial maps to assist State and Federal agencies in the development of an action plan and impact assessments.

Recommendation #3 - None

Finding #4 - A new 20 inch pipeline has been installed along I-680, and now bypasses most of the Suisun Marsh. The old eight inch pipeline that transports jet fuel to Travis Air Force Base remains within the Union Pacific Railroad right-of-way and traverses the Suisun Marsh. This leaves the marsh vulnerable to another serious petroleum spill.

Recommendation #4 - The Suisun Resource Conservation District and the County should investigate removing or relocating old pipelines from the marsh area before signing off on any future Environmental Impact Reports.

V. Comments

- From October 2001, through April 2005, Kinder Morgan has had a minimum of eight documented spill incidents in California and in three other western states.
- The State Fire Marshall's office has the responsibility for pipeline safety in California, but because the pipeline is an interstate line, federal agencies have ultimate jurisdiction. This hinders the ability of the state to effectively monitor location and safety pipelines. When the Solano County Grand Jury attempted to obtain information we found those agencies to be remote and unresponsive.
- The Grand Jury commends the Executive Director of Suisun Resource Conservation District for his actions in helping to contain the diesel spill and preventing what could have been a major disaster.
- The Incident Command consisting of representatives of the United States Environmental Protection Agency, California Department of Fish and Game (OSPR), United States Coast Guard, Kinder Morgan Energy Partners LP, and oversight from the California EPA Regional Water Quality Control Board conducted a smooth and thorough cleanup operation of the diesel spill in the Suisun Marsh.
- As noted in the narrative above, the Grand Jury has great concern that Kinder Morgan did not report this spill in a timely manner
- The Grand Jury commends all the aforementioned government agencies for the outstanding work in restoring the Suisun Marsh. This monumental task reflects the knowledge, professionalism and dedication of these professionals.
- The Grand Jury is confident that the Clean-up and Abatement Order mandated by the California EPA Regional Water Quality Control Board issued for the Suisun Marsh Spill, will be carried out to the fullest extent of the law.

VI. Affected Agencies

- Solano County Board of Supervisors
- Solano County Department of Resource Management
- Suisun Resource Conservation District

Courtesy Copies

- United States Environmental Protection Agency
- United States Coast Guard, Chief, Marine Environmental Response
- California Department of Fish and Game, Office of Spill Prevention and Response
- California Environmental Protection Agency, California Regional Water Quality Control Board, the San Francisco Bay Region
- California State Fire Marshall

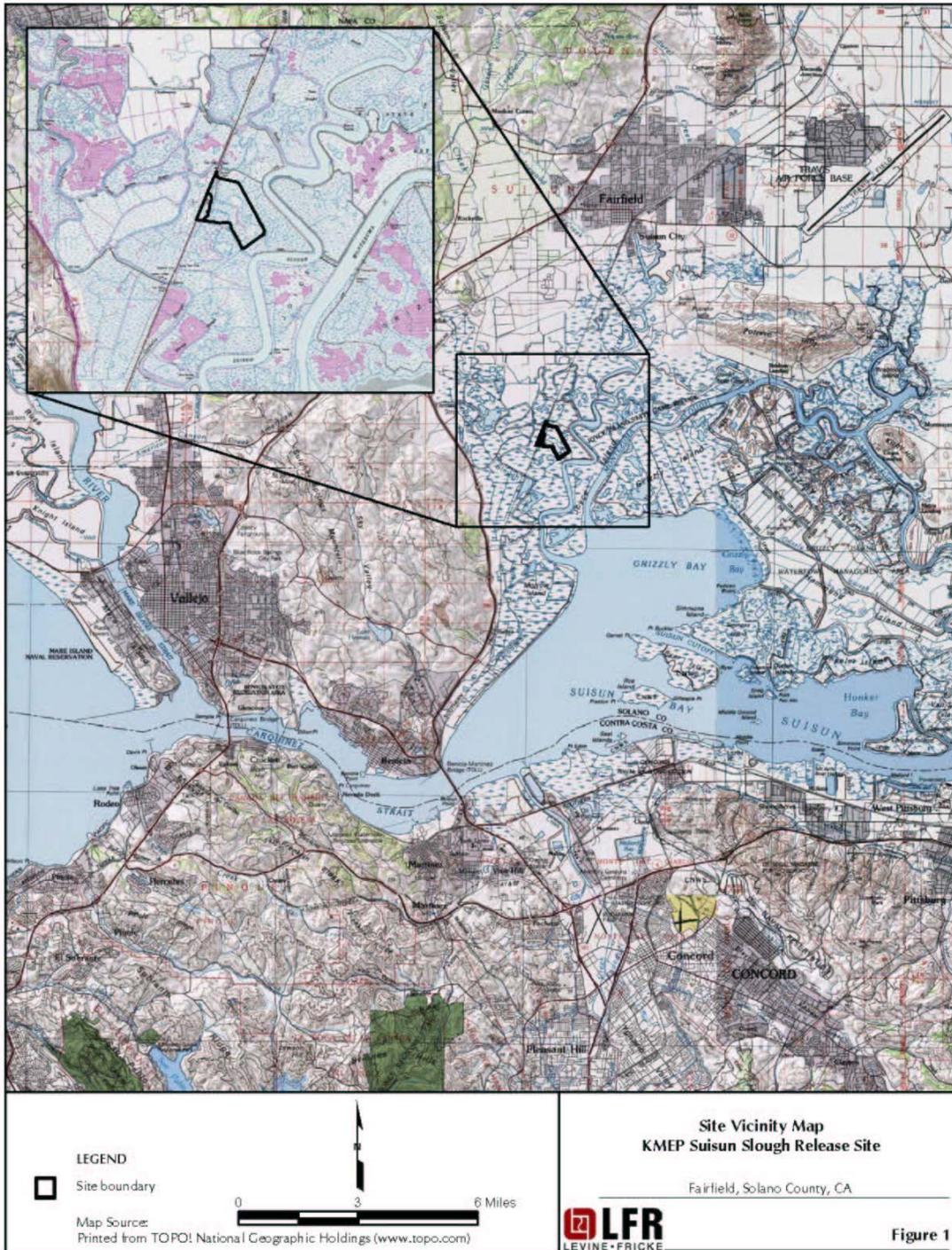


Figure 1. Location of the Spill

Source: *DRAFT Wetland Mitigation Plan, Pursuant to Provision 3 of Cleanup and Abatement Order NO. R2-2004-0054*, Submitted to California Regional Water Quality Control Board, San Francisco Bay Region January 28, 2005, Prepared for Kinder Morgan Energy Partners by Levine-Fricke Consultants



Figure 2. Mitigation Area A & B

Source: *DRAFT Wetland Mitigation Plan, Pursuant to Provision 3 of Cleanup and Abatement Order NO. R2-2004-0054*, Submitted to California Regional Water Quality Control Board, San Francisco Bay Region January 28, 2005, Prepared for Kinder Morgan Energy Partners by Levine-Fricke Consultants