

CLEAN

Contract Number N62474-88-D-5086

Contract Task Order 0235

Navy Engineer-In-Charge: Camille Garibaldi

PRC Project Manager: Joshua D. Marvil

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**NAVAL AIR STATION
MOFFETT FIELD, CALIFORNIA**

**BUILDING 191
TREATABILITY STUDY PLAN**

Prepared by

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June 7, 1993



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Mr. Stephen Chao
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Western Division
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**Subject: Naval Air Station Moffett Field
Treatability Study Plan for Building 191 Discharge**

Dear Stephen and Camille:

Please find enclosed three copies of the Treatability Study Plan for the Building 191 discharge treatment system. This document has been prepared by PRC Environmental Management, Inc. under the Navy CLEAN contract noted above. A copy of this document has also been submitted to Elizabeth Adams of the California Regional Water Quality Control Board for her information.

The plan includes the treatability study objectives, treatment system description, and the study sampling requirements. I will contact you in a few days to discuss this plan and its implementation. Meanwhile, please call me or Josh Marvil at (303) 295-1101 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Mark A. Kadnuck".

Mark A. Kadnuck
Project Engineer

cc: Ms. Elizabeth Adams, RWQCB 930607.02
Lt. Susanne Openshaw, NASMF 930607.03
Don Chuck, NASMF
Joshua D. Marvil, PRC

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1.0 INTRODUCTION

This report details the treatability study for water discharged from Building 191 at Naval Air Station Moffett Field (NASMF), California. Section 1.0 is the introduction. Section 2.0 discusses the treatability study objectives. Section 3.0 describes the treatment system and Section 4.0 discusses sampling during the study. Section 5.0 explains how the study results will be presented and Section 6.0 lists the references used for this plan.

Building 191 at NASMF is a pump station which receives surface runoff from the eastern and western sides of the base as well as shallow groundwater from the runway area. The water collected at Building 191 is pumped and discharged into the Navy channel where it flows off base.

The Building 191 water discharge is regulated under the National Pollutant Discharge Elimination System (NPDES). The Navy submitted an NPDES permit application that is being reviewed by the California Regional Water Quality Control Board (RWQCB) for permission to discharge water from storm drains into a surface water impoundment. The point of compliance for meeting the permit requirements, per RWQCB, is the point where the discharge water contacts the receiving water body. As the permit application is currently written, the Navy can discharge water only with trichloroethene (TCE) concentrations below 5 micrograms per liter ($\mu\text{g/L}$). A discharge sample collected in March 1992 showed a TCE concentration of 7 $\mu\text{g/L}$, which exceeded the NPDES requirements. Subsequent sampling showed the Building 191 discharge water meets the NPDES permit requirements, indicating that little or no treatment is required. However, RWQCB has requested the installation of a treatment system to ensure that discharge will not exceed 5 $\mu\text{g/L}$ when influent TCE concentrations to Building 191 are greater than 5 $\mu\text{g/L}$.

A simple aeration system appears to be the most appropriate treatment for the Building 191 discharge water based on the volatile nature of contaminants, the low contaminant levels, and the relatively high flow rate. Aeration is effective for removing volatile organics from water and should provide sufficient removal rates for the low level of contamination found in the water. A treatment system will be installed as part of this treatability study. If the treatability study shows the system to be effective, it will be implemented as a long-term remedial measure.

2.0 OBJECTIVES

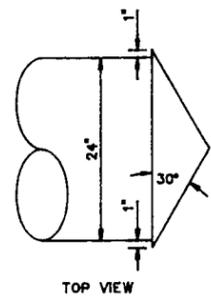
The main objective of the Navy is to discharge water from Building 191 that meets the requirements of its NPDES permit. This treatability study aims to evaluate the effectiveness of a spray aeration system to treat the Building 191 discharge water for volatile organic compounds (VOCs) so it meets the NPDES permit requirements. A secondary objective of the study is to obtain data throughout the year on the Building 191 water quality. This treatability study has been designed to meet the study objectives.

3.0 TREATMENT SYSTEM DESCRIPTION

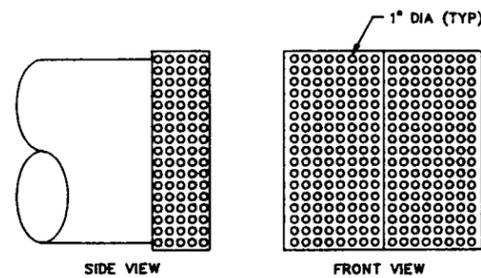
The Building 191 treatability study treatment system uses equipment already in place. Water from the well cistern will be pumped, using the existing 25 horsepower pump, through a 24-inch discharge line with a spray nozzle on the end. The water is sprayed from the nozzle and aerated prior to entering the Navy channel (Figure 1). Spray aerators typically have removal efficiencies ranging from 50 to 90 percent (NWWA 1990).

The system will operate cyclically. As the water level in the well cistern rises it will activate a level switch which turns on the pump. The pump will run until the level in the well cistern drops low enough to deactivate the level switch. As the water level begins to rise again, the cycle will be repeated. The last measured flow from Building 191 was 91 gallons per minute (gpm) but this flow can fluctuate substantially throughout the year. By using the existing pump and discharge pipe for the treatment system, the variable flow at Building 191 can be accommodated.

The VOCs emitted from the spray aeration will be discharged directly to the atmosphere. However, based on a 91 gpm flow rate and the highest VOC levels detected (a TCE concentration of 7 $\mu\text{g/L}$ and a 1,2-dichloroethylene concentration of 2 $\mu\text{g/L}$), only 0.0098 pounds per day of VOCs would be emitted which is well below the one pound per day threshold values established by the Bay Area Air Quality Management District (BAAQMD) for air emissions.



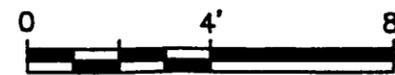
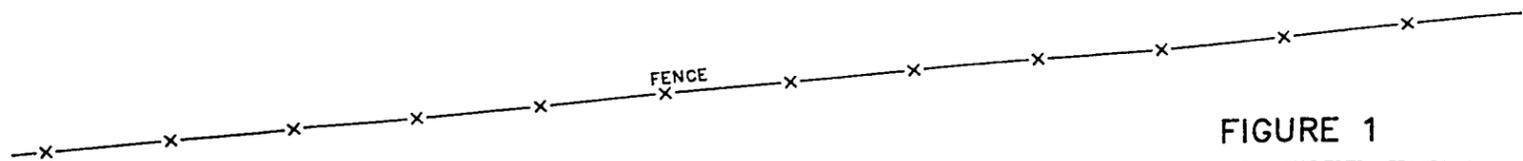
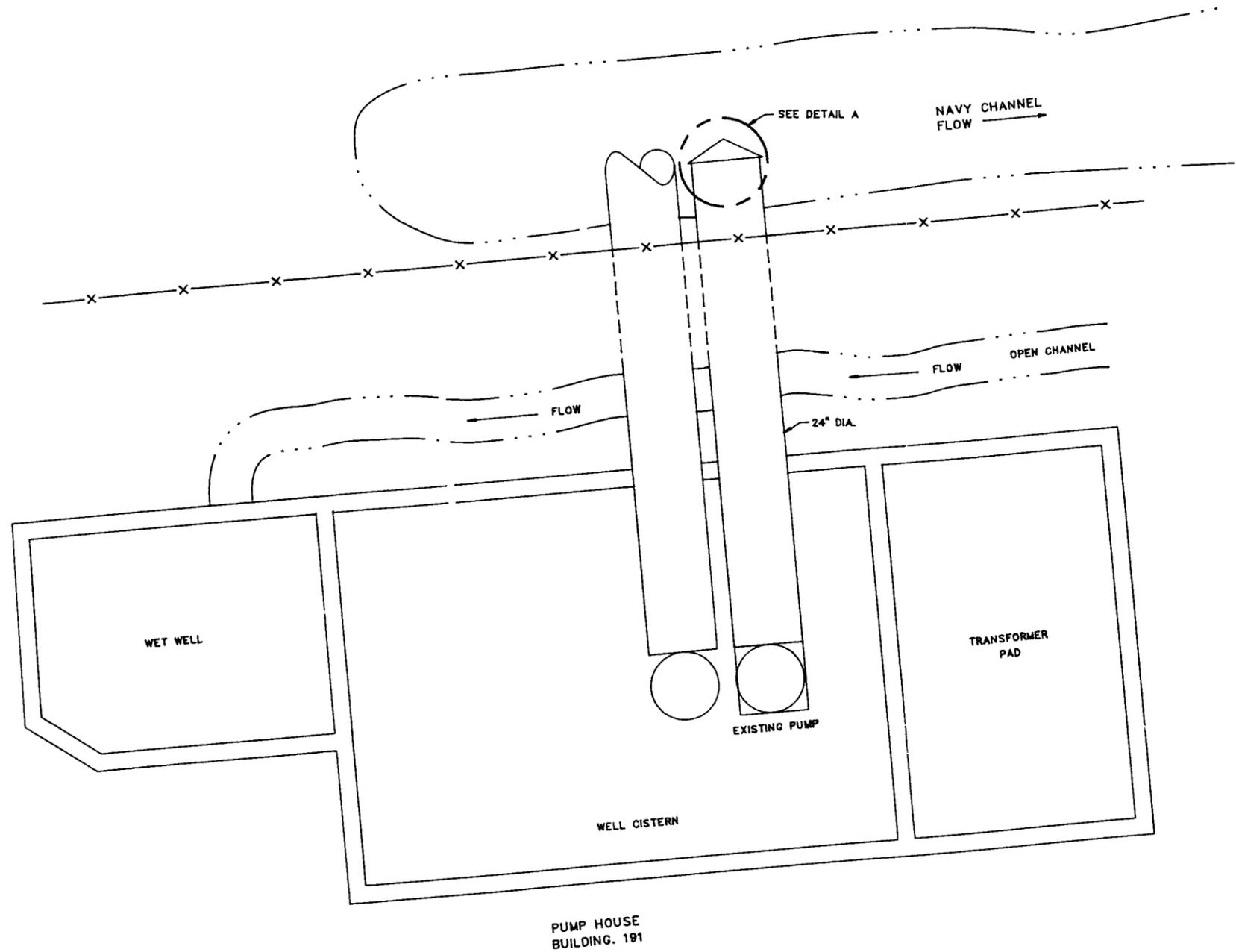
TOP VIEW



SIDE VIEW

FRONT VIEW

SPRAY NOZZLE
DETAIL A
SCALE: 1" = 2'



SCALE: 1" = 4'

FIGURE 1
NAS MOFFETT FIELD
PLAN DIAGRAM
TREATMENT SYSTEM FOR BUILDING 191 DISCHARGE

DATE: 06/07/83 MDS DNF: 04410235 VRS CP1 PLAN-191.DWG

4.0 TREATMENT SYSTEM SAMPLING

Water samples will be collected from the Building 191 well cistern and effluent. The effluent will be sampled using an extended reach device to collect the discharge water just before it enters the Navy channel. The water samples will be collected using procedures outlined in the base-wide field sampling plan (PRC 1992b). Samples collected will be analyzed for VOCs. The samples will be analyzed using methods specified in the base-wide quality assurance project plan (PRC 1992c). Samples will be collected weekly during the first month of startup, once a month for the second and third months after startup, and quarterly thereafter. Table 1 presents the sampling summary for the Building 191 treatability study.

The base-wide health and safety plan (PRC 1992a) will be followed during all sampling activities and any other field work.

5.0 PRESENTATION OF RESULTS AND CONCLUSIONS

Upon completion of the study and receipt of all sample results, a report will be generated to present the results and conclusions. Sample results will be made available to the Navy and regulatory agencies throughout the study. Should interim results show the spray aeration system to be ineffective, actions will be taken to modify or replace the system in a manner that will result in discharges that meet the NPDES requirements for VOCs.

6.0 REFERENCES

NWWA, 1990. "Treatment Technology for Contaminated Ground Water." Association of Ground Water Scientists and Engineers. Dublin, Ohio. August 7-9.

PRC, 1992a. "Health and Safety Plan, Naval Air Station, Moffett Field, Mountain View, California." March.

PRC, 1992b. "Field Sampling Plan, Naval Air Station, Moffett Field, Mountain View, California." June.

PRC, 1992c. "Quality Assurance Project Plan, Naval Air Station, Moffett Field, Mountain View, California." July.

**TABLE 1
 NAS MOFFETT FIELD BUILDING 191
 TREATABILITY STUDY SAMPLING SUMMARY**

Sample Location	Sample Identification	Sampling Frequency ¹		
		July 1993	August 1993 - September 1993	October 1993 - June 1994
Building 191 Well Cistern	B191W-0XX ²	Weekly	Monthly	Quarterly
Building 191 Discharge	B191D-0XX	Weekly	Monthly	Quarterly

¹ Samples will be analyzed for volatile organic compounds (VOCs)

² Samples will be numbered sequentially