3R - 38

GENERAL CORRESPONDENCE

YEAR(S): 1997

Southern
Rockies
Business
Unit

June 8, 1994

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

Attention: Mr. Bill Olson

Pilot Test -- Martinez Gas Com G No. 1

We are asking the OCD for permission to conduct a pilot test to demonstrate the feasibility of a method Amoco wishes to examine for possible use in hard-to-reach areas; i.e., under roads, well pads, buildings, etc., or to force treatment into tight clays. Attached is a technical description of the process, drawing of the method, MSDS sheet for the dye to be used as a tracer, video tape of the process and results as utilized in Napa, California, recently and a recipe for the nutrients used.

The location we are asking for permission to demonstrate on is the Martinez Gas Com G No. 1 on Terrance Archunde's property. We will be digging holes into the ground water with a backhoe, the groundwater is 4' deep, and attempting to move the treatment under an existing barn in two different directions to form a cross under the building. The trenches we set the electrodes in will be long enough to witness the movement of the dye in open water. The distance between holes will be at 50'-70'.

Using the distance of 70' long and the arc of the treatment being at 35' at the widest point of the pattern "football shape," or average 20' wide, the area of impact will be at 28,000 cubic feet and saturation of at 50% water would leave at 14,000 cubic feet of water impacted. Using 7.5 gallons per cubic foot as the formula, we are impacting at 105,000 gallons if the entire treatment is under water. We will be setting the electrodes at 6' deep so to estimate at 50% or 52,500 gallons of water impacted. The target nitrate level is at 15 PPM throughout to protect the groundwater quality. Subsequent treatments will be necessary as the nitrates are depleted until the TPH level is to proper levels. The amount of 45-0-0 urea nitrogen added to the 200 gallon tank for the treatment to achieve at 15 PPM nitrates in the impacted area will be at 6.5 pounds nitrate. With the microbes used in this test the conversion of urea nitrogen to nitrate is at 50%, so to achieve 6.5 pounds nitrate from 45% urea we will add at 30 pounds of 45-0-0 urea nitrogen to the 200 gallon

tank to feed through the electrodes. To assure that we are not overloading the ground-water with nitrates, a sample will be pulled before treatment and analyzed for nitrates as background and we will adjust the 30 pounds added according to these results.

The MSDS for the microbes used are on file with your office as used by E.P.C.

I hope this answers your questions. We are hoping to perform the test the week of June 20th. If you need any further information, please do not hesitate to call.

B. D. Shaw

B. D. Shaw
Environmental Coordinator

Enclosures

cc: Mr. Denny Foust
NMOCD
Aztec, New Mexico

TECHNICAL DESCRIPTION

Performing Electro-osmosis With the Use of Electrophoresis

Electro-osmosis is the movement of liquids through a membrane, i.e., clays, etc. The pressure to force the liquids through the soils, etc., is supplied by a biased electrical charge on a DC current and is called electrophoresis.

To accomplish this technique, I will utilize existing monitoring wells with screened intervals below the water table. I will utilize holes anywhere from 20' to 100' apart; the determining factor is the amount of electrical current between the holes. As long as a few millimhos are carried between the holes the technique can be performed. I will utilize 3/4" rigid copper pipe as electrodes and they will be threaded together in 10' ~~joints~~ with 1/4" holes drilled in the bottom of the anode. The holes will be placed at 3" aperture apart and will be installed as deep as the water is.

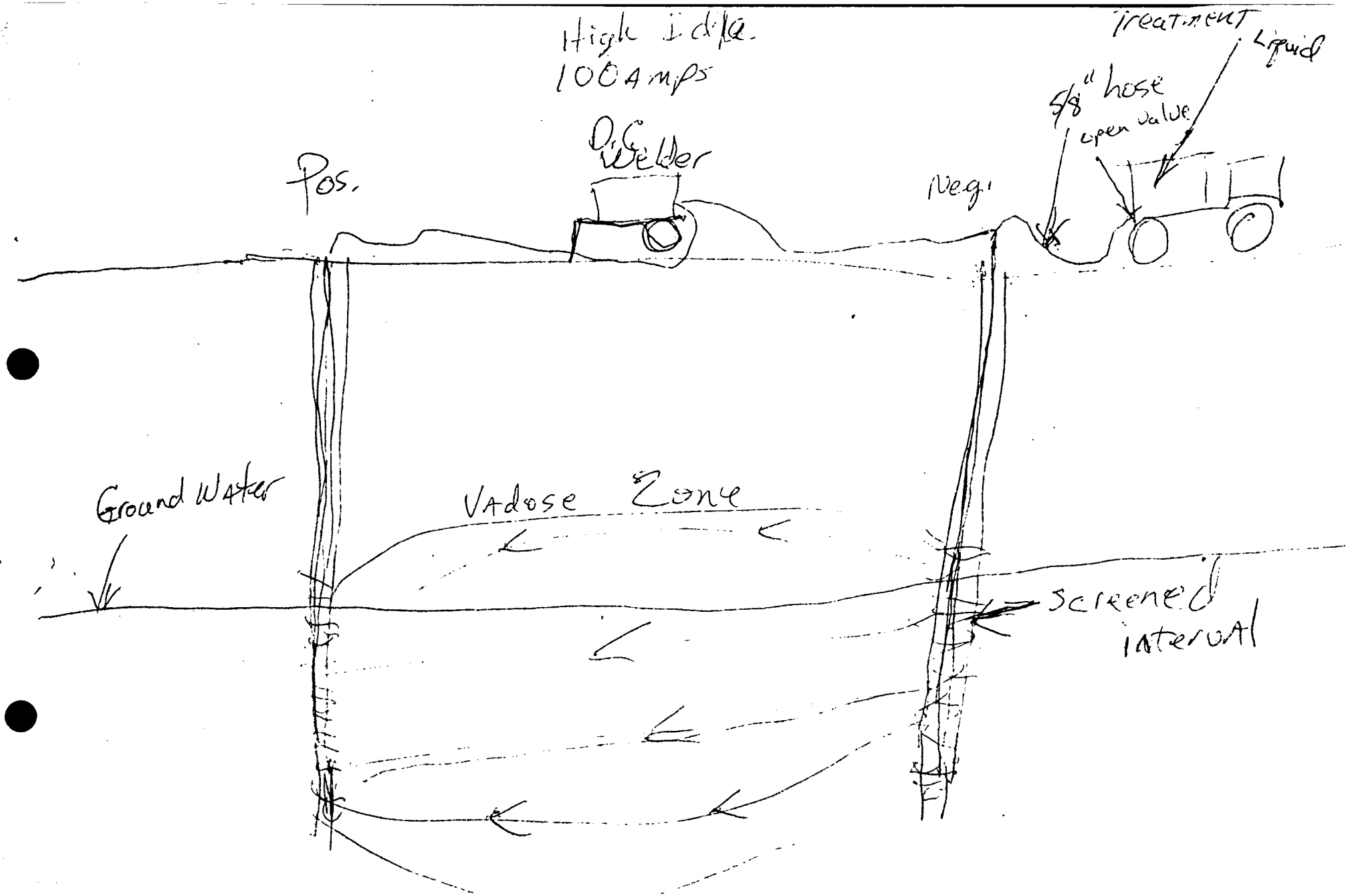
The electrodes will be placed in the monitoring wells by clamping them at the top of the casing to suspend them. The bottom of the electrodes must not touch the bottom of the well. The holes in the anode will be pointed toward the cathode with a 5/8" garden hose attached to the top of the anode and the hose gravity fed from a tank elevated above the electrode level. The tank valve will be left open all the way to maintain a constant pressure on the anodes.

The tank is to be filled with 100-200 gallons of water, dissolved nutrients, Rhodamine red dye, and strained microbes and enzymes.

A 200 amp DC welder will be attached to the electrodes by attaching a 12-gauge wire around the pipe and clamping the welder lead to these wires. They work as fuses to measure resistivity.

The negative lead is attached to the electrode the tank is feeding into. The welder will be set at 100 amps and set on high idle. Samples will need to be taken from the cathode hole every 30 to 45 minutes until the dye shows up or the welder idles faster on its own. When this happens, the technique is complete. Subsequent treatments may be necessary days later, depending on TPH levels and the tightness of the clays.

Written by Jerry Finney, Sr.
May 30, 1994


High idle.
100 Amps
D.C. Welder
Pos.
Neg.
5/8" hose
open valve
treatment
Liquid
Ground Water
Vadose Zone
Screened
interval

CROMPTON & KNOWLES CORPORATION
DYES & CHEMICALS DIVISION
ENVIRONMENTAL AFFAIRS DEPARTMENT
P.O. BOX 341
READING, PA 19603

(215) 582-8765

Part Number
050-0121

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

TRADE NAME.....: INTRACID RHODAMINE WT LIQUID
CHEMICAL FAMILY....: XANTHENE
ITEM FAMILY.....: 4517
COLOR INDEX NAME...: C.I.ACID RED 388
CAS NO.....: PROPRIETARY
REVISION DATE.....: 01/19/90 LAST REVISION DATE: 01/03/89

II. HAZARD WARNING LABEL

WARNING:

MAY CAUSE EYE IRRITATION

HANDLE WITH CARE, AVOID CONTACT

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY THE OSHA HAZARD COMMUNICATION STANDARD. HOWEVER, AS WITH ALL CHEMICALS; HANDLE WITH CARE, AVOID EYE AND SKIN CONTACT, AVOID INHALATION OF DUSTS OR VAPORS. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINERS CLOSED.

II. HAZARDOUS INGREDIENTS

INGREDIENT: SODIUM HYDROXIDE (1310-73-2) %: <1
EXPOSURE LIMITS....: 2 MG/M3 CEILING (ACGIH,OSHA)

HAPIM HMIS
H: 1 F: 1 R: 1 P: C

IV. PHYSICAL DATA

APPEARANCE.....: DARK RED LIQUID
ODOR.....: NO ODOR
BOILING POINT.....: AQUEOUS
MELTING POINT.....: -10 C
PH.....: 10.9 +/- 0.7
SOLUBILITY IN WATER: SOLUBLE
SPECIFIC GRAVITY...: 1.19

V. FIRE AND EXPLOSION DATA

FLASH POINT.....: N/A AQUEOUS
FLAMMABLE LIMITS....: N/A
EXTINGUISHING MEDIA: WATER, DRY CHEMICAL, CO2
SPECIAL PROCEDURES
FOR FIGHTING FIRE..: WEAR SCBA
UNUSUAL HAZARDS....: NONE EXPECTED

NFPA CODE:
F: 1 H: 1 R: 1 S: N

I. REACTIVITY DATA

TABILITY.....: STABLE
CNDITICNS TO
VOID.....: NONE
CLYMERIZATICN.....: WILL NOT CCCUR
CNDITICNS TO
VOID.....: NCNE
NCOMPATIBILITY....: NONE KNCWN
HAZARDCUS
DECOMPCSITICN.....: BURNING WILL PRODUCE CXIDES OF CARBON & NITROGEN

II. HEALTH HAZARD DATA

EFFECTS OF CVEREXPCSURE:
LIQUID IN CONTACT WITH EYES MAY CAUSE IRRITATION.

INTRACID RHODAMINE WT LIQUID WAS TESTED IN A BATTERY CF IN VITRO AND IN VIVO MAMMALIAN ASSAYS RESULTING IN NEGLIGIBLE CR LOW LEVELS CF GENOTOXIC ACTIVITY EVEN AT VERY HIGH CONCENTRATIONS. NO EVIDENCE CF IN VIVO GENETIC ACTIVITY WAS OBSERVED EITHER IN TERMS CF BONE MARROW MICRONUCLEI OR SPERM ABNORMALITIES. (G.R.DOUGLAS ET AL. "COMPARATIVE MAMMALIAN IN VITRO AND IN VIVO STUDIES ON THE MUTAGENIC ACTIVITY OF RHODAMINE WT". MUTATION RESEARCH, 118, 1983, 117-125)

INTRACID RHODAMINE WT WAS POSITIVE IN A SALMONELLA/MAMMALIAN MICROSOME ASSAY (NESTMANN AND KCWBEL, 1979). G.DOUGLAS AS REFERENCED, STATED THAT IMPURITIES IN THE DYE MAY HAVE CAUSED THE MUTAGENIC EFFECTS SEEN OR ALTERNATIVELY THE DYE MAY BE A POINT MUTAGEN. DOUGLAS FURTHER REPORTED THAT TAKING THE DATA ALTOGETHER FROM HIS STUDY, "...RHODAMINE WT APPEARS NCT TO REPRESENT A MAJOR GENOTOXIC HAZARD."

ROUTES OF EXPOSURE:
INHALATICN: SKIN: X INGESTION: EYES: X

SIGNS AND SYMPTOMS
OF OVEREXPOSURE....: NCT KNOWN

MEDICAL CONDITICNS
GENERALLY AGGRAVATED
BY EXPOSURE.....: NCT KNEWN

CARCINOGENICITY:
NTP? NO IARC: NO OSHA REGULATED: NO

TCXICITY DATA:
ORAL (ANIMAL).....: ALC 23 G/KG
DERMAL (ANIMAL)....: NO DATA
INHALATION (ANIMAL): NO DATA
EFFECTS TO EYES
(ANIMAL).....: NO DATA
SKIN IRRITATICN....:
(ANIMAL).....: NO DATA
FISH, LC50 (LETHAL): >320 MG/L 96 & 48 HR (RAINBCW TROUT)
ADDITICNAL DATA....: 170 MG/L 72HR (DAPHNIA), 10 MG/L 48HR (OYSTER), >2000 MG/L 96HR (WATER HOG LOUSE)

NO EVIDENCE OF SIGNIFICANT BIOACCUMULATION IN FISH

III. EMERGENCY AND FIRST AID PROCEDURE

INHALATION.....: IF INHALED, MOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE OXYGEN AND GET MEDICAL ATTENTION RIGHT AWAY.

EYE CONTACT.....: FLUSH EYES WITH FLOWING WATER FOR AT LEAST 15 MINUTES, HOLDING EYELIDS APART TO IRRIGATE THOROUGHLY. GET MEDICAL ATTENTION RIGHT AWAY.

SKIN CONTACT.....: WASH AFFECTED SKIN AREAS THOROUGHLY WITH SOAP AND WATER. IF IRRITATION DEVELOPS, CONSULT A PHYSICIAN

INGESTION.....: IF SWALLOWED, DILUTE WITH WATER AND INDUCE VOMITING. GET IMMEDIATE MEDICAL ATTENTION. NEVER GIVE FLUIDS OR INDUCE VOMITING IF PATIENT IS UNCONSCIOUS OR HAS CONVULSIONS.

IX. SPECIAL PROTECTION

RESPIRATORY.....: NOT REQUIRED
EXPOSURE LIMITS....: NONE ESTABLISHED FOR THE LIQUID PRODUCT

VENTILATION LOCAL: X MECHANICAL:

PROTECTIVE GLOVES..: RUBBER GLOVES
EYE PROTECTION.....: GOGGLES
OTHER PROTECTIVE
EQUIPMENT.....: APRON, COVERALL TO MINIMIZE SKIN CONTACT

X. SPECIAL PRECAUTIONS

IN ACCORD WITH GOOD INDUSTRIAL PRACTICE, HANDLE THIS PRODUCT WITH CARE AND AVOID PERSONAL CONTACT.

XI. TRANSPORTATION INFORMATION

DOT HAZARD
CLASSIFICATION.....: N/A
DOT PROPER SHIPPING
NAME.....: DOT NOT REGULATED
DOT LABEL.....: N/A
UN/NA NUMBER.....: N/A
R.Q.....: N/A

XII. SPILL AND LEAK PROCEDURES

REGULATORY WASTE
DESCRIPTION.....: NOT HAZARDOUS ACCORDING TO 40 CFR PART 261
R.Q.....: NONE
WASTE DISPOSAL.....: BURY OR INCINERATE ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

DRUM DISPOSAL.....: CONTAINERS SHOULD BE TRIPLE RINSED ACCORDING TO FEDERAL REGULATIONS.

STEPS TO BE TAKEN IF
MATERIAL RELEASED
OR SPILLED.....: WEAR APPROPRIATE SAFETY EQUIPMENT. CONTAIN AND CLEAN UP SPILL IMMEDIATELY, PREVENT FROM ENTERING

FLOOR DRAINS. CONTAIN LIQUIDS USING ABSORBANTS. SWEEP POWDERS CAREFULLY MINIMIZING DUSTING. SHOVEL ALL SPILL MATERIALS INTO DISPOSAL DRUM. FOLLOW DISPOSAL INSTRUCTIONS. SCRUB SPILL AREA WITH DETERGENT. FLUSH WITH COPIOUS AMOUNTS OF WATER.

XIII. REGULATORY INFORMATION

TSCA.....: IN COMPLIANCE.

SARA:
THIS PRODUCT IS NOT REPORTABLE UNDER SARA SECTION 313

OSHA HAZARD CLASSIFICATION:
ACUTE....: NO CHRONIC..: NO FLAMMABLE.:NO
REACTIVE.: NO OXIDIZER.: NO

STATE RIGHT TO KNOW LAWS:

INGREDIENTS:	CAS#:	STATES:
NONHAZARDOUS		
ACID RED DYE	PROPRIETARY	PA,NJ-TSRN1888400-5038P,MA
ACID RED DYE	PROPRIETARY	PA,NJ-TSRN1888400-5088P,MA
WATER	7732-18-5	PA,NJ,MA

XIV. OTHER INFORMATION

THIS PRODUCT IS NOT A "CONTROLLED" PRODUCT AS DEFINED BY THE CANADIAN WHMIS.

DISCLAIMER:

CROMPTON & KNOWLES WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL AND IS REASONABLY FIT FOR THE SPECIFIC PURPOSES REFERRED TO IN ITS DIRECTIONS FOR USE, SUBJECT TO THE INHERENT RISKS REFERRED TO IN THE MATERIAL SAFETY DATA SHEET FOR THIS PRODUCT. CROMPTON & KNOWLES MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILTIY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL CROMPTON & KNOWLES BE LIABLE FOR CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

JANUARY 6 THURSDAY

1994 6th day – 359 days follow

8:00 - 12:00
49064 - 49131

Ran MIT on Giant Exploration
Carson Unit 23-13, S-13-25N-13W
Carson Unit 44-13 P-13-25N-13W
Carson Unit 33-13 J-13-25N-13W
Basin Disposal
[redacted] → Colin Hunt New Menger
Contact Person
Oil clean up complete.

FRIDAY 7 JANUARY

1994 7th day – 358 days follow

10:00 - 2:15
49131 - 49205

Jerry Spangler - 1703 Plant Rd
632-2103

Amoco Martinez Gas Com G #1, A-24-T29N-R1
Amoco will be excavating about 300 yds to be composted onsite. EPNG will be hauling about 100 cy to Envirotech. Definite has affected water table — need follow up test Groundwater affected at 10 feet.
Jerry Spangler 1703 Plant Rd
Bloomfield — apparently an upset at the meridian Valverde plant deposited material on the Spangler residence between four and five P.M January 6, 1994. Observing material it appears clear with an oily feel, no apparent odor, possibly some sort of amine.
January 11, 1993 - Mike Frampton is back in town and has discovered an upset of about 50 gals wtr and MDEA near the time in question. We will follow up at the plant and with the Spanglers