NM1 - 9

C-138

YEAR(S):

2000

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator COASTAL CHEMICAL
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site YARD
2. Management Facility Destination KEY DISPOSAL	6. Transporter KEY
3. Address of Facility Operator #345 CR 3500 AZTEC NEW MEXICO	8. State NM
7. Location of Material (Street Address or ULSTR) #10 RD 5911 87401 FARMINGTON, NM	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

RINSEWATER & UNUSED CHEMICALS LEFT IN HOSES, PUMPS AND TANKS

DEC 2000
RECEIVED
OIL CON. DIV.
DIST. 3

Estimated Volume <300bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE _____ TITLE: MGR DATE: 12-15-2000
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: _____ TITLE: Geologist DATE: 12/19/00

APPROVED BY: _____ TITLE: Environmental Geologist DATE: 1/11/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
COASTAL CHEMICAL CO., INC. #10 RD 5911 FARMINGTON, NM 87401	KEY ENERGY SERVICES 345 RD 3500 AZTEC, NM 87401
3. Originating Site (name): YARD Attach list of originating sites as appropriate	**Location of the Waste (Street address &/or ULSTR):** COASTAL CHEMICAL CO., INC. #10 RD 5911 FARMINGTON, NM 87401
4. Source and Description of Waste RINSE WATER FROM PUMP, HOSES AND TANKS USED TO DELIVER VIRGIN CHEMICALS. ALL CHEMICALS RINSED OUT ARE VIRGIN?UNUSED CHEMICALS. CHEMICALS MAY INCLUDE: ALKANOLAMINE, GLYCOL (TEG & EG) ANTIFREEZE.	

I, MIKE EBERHARD representative for:
(Print Name)

COASTAL CHEMICAL CO, INC. do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

___ **EXEMPT** oilfield waste

_XX_ **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

_XX_ MSDS Information
___ RCRA Hazardous Waste Analysis
___ Chain of Custody
___ Other (description):

Name (Original Signature): Greg Stekely

Title: FACILITY MANAGER

Date: 12-14-00

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 55520 Page: 1

Product Name: METHYLDIETHANOLAMINE

Effective Date: 07/12/93 Date Printed: 07/14/93 MSDS:000913

1. INGREDIENTS: (% w/w, unless otherwise noted)

Methyldiethanolamine CAS# 000105-59-9 99%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 464-491F, 240-255C
VAP PRESS: <1 mmHg @ 20C
VAP DENSITY: 4
SOL. IN WATER: Complete
SP. GRAVITY: 1.04-1.06
APPEARANCE: Pale straw liquid.
ODOR: Amine odor.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: 270F, 132C; 269F, 131C
METHOD USED: COC; Setaflash closed cup

FLAMMABLE LIMITS
LFL: Not determined
UFL: Not determined

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large scale fires, alcohol resistant foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run off water. For large scale fires, direct water stream may cause violent frothing, but fine water spray may help control situation.

(Continued on page 2 , over)

* An Operating Unit of The Dow Chemical Company

3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

FIRE & EXPLOSION HAZARDS: Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situation. Fire water run off may be toxic. When using water spray, boil over may occur when the product temperature reaches the boiling point of water (tank type scenarios, not spills).

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective equipment.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) No relevant data.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Possible nitrogen oxides and carbon oxides.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS: Wash small amounts with water. Dike to avoid contamination of sewer system with large amounts. Keep out of sewers, storm drains, surface waters and soil.

DISPOSAL METHOD: ++DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER++. For unused or uncontaminated material, the preferred management options are to send to a licensed recycler, reclaimer, or incinerator. The same management options are recommended for used or contaminated material, although additional evaluation is required. (see, for example, 40 CFR Part 261, "Identification and Listing of Hazardous Waste"). Any disposal practice must be in compliance with federal, state, provincial, and local laws and regulations. Check with appropriate agencies for your location. For additional information, see Section 4 (REACTIVITY DATA) and "REGULATORY INFORMATION".

As a service to its customers, Dow can provide lists of

(Continued on page 3)

5. ENVIRONMENTAL AND DISPOSAL INFORMATION: (CONTINUED)

companies which recycle, reprocess or manage chemicals and companies that recondition used drums. Telephone Dow's Customer Information Center at 800/258-CHEM (2436) for further details.

6. HEALTH HAZARD DATA:

EYE: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if confined or skin is abraded.

SKIN ABSORPTION: A single prolonged skin exposure is not likely to result in absorption of harmful amounts. The LD50 for skin absorption in rabbits is >2000 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD50 for rats is likely between 2000-3980 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion may cause burns of mouth and throat.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

SYSTEMIC & OTHER EFFECTS: No relevant information found.

7. FIRST AID:

EYES: Immediate and continuous irrigation with flowing water for at least 30 minutes is imperative. Prompt medical consultation is essential.

SKIN: Wash off in flowing water or shower. Remove contaminated clothing and wash before reuse.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

(Continued on page 4 , over)

7. FIRST AID: (CONTINUED)

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): None established.

VENTILATION: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Eye wash fountain should be located in immediate work area.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion.

MSDS STATUS: Revised sections 3, 5, 9, and Regulatory Information

REGULATORY INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty; express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS

(Continued on page R-2 , over)

REGULATORY INFORMATION (CONTINUED)

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2B

CANADIAN TDG INFORMATION: For guidance, the Transportation of Dangerous Goods Classification for this product is:

Not regulated

MATERIAL SAFETY DATA SHEET
TRIETHYLENE GLYCOL

1	HMIS HEALTH
1	HMIS FLAMMABILITY
0	HMIS REACTIVITY
B	HMIS PERSONAL PROTE

SECTION I - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC
P.O. BOX 820
ABBEVILLE, LA 70511-0820
(318) 893-3862

EMERGENCY PHONE NUMBER... (318) 893-3862 OR CHEMTREC (800) 424-9300

EFFECTIVE DATE..... 02/26/90

MANUFACTURER'S NAME..... UNION CARBIDE
DOW CHEMICAL
TEXACO
OXY-PETROCHEMICAL

TRADE NAME..... TRIETHYLENE GLYCOL

CHEMICAL FAMILY..... POLYETHYLENE GLYCOL

CAS NUMBER..... 112-27-6

CHEMICAL FORMULA..... C6H1404

SECTION II - HAZARDOUS INGREDIENTS

ZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS
TRIETHYLENE GLYCOL	93	None Established	112-27-6

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... -7 Deg. C., 19 Deg. F.

VAPOR PRESSURE (mm Hg)... (1 mm

VAPOR DENSITY (Air=1).... 5.2, air = 1

SOLUBILITY IN H2O..... Completely soluble in all proportions

APPEARANCE/ODOR..... Clear, colorless, viscous liquid with slight odo

SPECIFIC GRAVITY (H2O=1). 1.1 @ 77 Deg. F., 25/25 Deg.C

PH..... N/D

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 350 Deg. F.

LOWER FLAME LIMIT..... 0.9

HIGHER FLAME LIMIT..... 9.2

EXTINGUISH MEDIA..... Use water fog or spray, Alcohol Foam, Dry Powder, Carbon Dioxide (CO2).

UNUSUAL FIRE HAZARD..... Containers may explode from internal pressure if confined to fire. Cool with water. Keep unnecessa people away. Approach fire from upWind side. Avo breathing smoke, fumes, mist or vapors on the downWind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... Recommended 5 MG/M3 based on oil mist.

ROUTES OF ENTRY.	INHALATION?	SKIN?	INGESTION?
	Irritant	Mild irritant	Irritant

HEALTH HAZARDS..... ACUTE: Vapors or liquid may be irritating to sk eyes, or mucous membranes. Avoid inhalation or skin/eye contact.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REG
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Irritation develops immediately upon contact.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or s with plenty of water for at least 15 minutes wh removing contaminated clothing and shoes. Get m attention. Wash clothing before reuse. If swall do not induce vomiting, get immediate medical attention. If inhaled, remove to fresh air. If breathing, give artificial respiration, preferat mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable

CONDITIONS TO AVOID..... Heat may cause internal pressure which could rup container.

INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials.

DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monox

HAZARDOUS POLYMERIZATION. Will not occur

POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material dispose of in accordance with applicable regulat

WASTE DISPOSAL METHOD.... Industrial Waste. Follow Federal, State and Loca laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION... When ventilation is not adequate, use of NIOSH approved organic vapor gas cartridge respirator recommended.

VENTILATION..... Required in closed areas

MECHANICAL EXHAUST..... Required in closed areas

LOCAL EXHAUST..... Desired

PROTECTIVE GLOVES..... Wear impervious gloves

EYE PROTECTION..... Use chemical goggles or full face shield.

OTHER PROTECTIVE
EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE..... Store away from oxidizers or materials bearing yellow "DOT" label. Keep out of sun and away fr heat. Clean up leaks immediately to prevent soi water contamination.

PRECAUTIONARY MEASURES... Avoid contact with skin, eyes, and clothing. Af handling this product, wash hands before eating drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first a action shown in Section V. Use with adequate ventilation.

HAZARD CLASS..... Not Regulated
DOT SHIPPING NAME..... Triethylene Glycol
REPORTABLE QUANTITY (RQ). None
UN NUMBER..... None
NA #..... None
PACKAGING SIZE..... N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... NO
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO
EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... None

SARA TPQ..... None
SARA EHS..... None
SECTION 313..... No

EPA HAZARD WASTE #..... None
CLEAN AIR..... Yes Section 111
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
(- means less than) - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Glen White, B.I.S., 817-560-4631

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CU
IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS.
FORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIE
BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED B
MPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLU
CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE
CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL
REGULATIONS.

MATERIAL SAFETY DATA SHEET
TRIETHLYLENE GLYCOL REPROCESSED

1	HMIS HEALTH
1	HMIS FLAMMABILITY
0	HMIS REACTIVITY
B	HMIS PERSONAL PROT.

SECTION I - IDENTIFICATION

DISTRIBUTED BY.....	COASTAL CHEMICAL COMPANY, INC P.O. BOX 820 ABBEVILLE, LA 70511-0820 (318) 893-3862
EMERGENCY PHONE NUMBER...	(318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE.....	02/26/90
MANUFACTURER'S NAME.....	
TRADE NAME.....	TRIETHLYLENE GLYCOL REPROCESSED
CHEMICAL FAMILY.....	POLYETHYLENE GLYCOL
CAS NUMBER.....	112-27-6
CHEMICAL FORMULA.....	C6H1404

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS
TRIETHYLENE GLYCOL	98	None Established	112-27-6

SECTION III - PHYSICAL DATA

FREEZING POINT (F).....	-7 Deg. C., 19 Deg. F.
VAPOR PRESSURE (mm Hg)...	(1 mm
VAPOR DENSITY (Air=1)....	5.2, air = 1
SOLUBILITY IN H2O.....	Completely soluble in all proportions
APPEARANCE/ODOR.....	Light amber color, viscous liquid with slight orde
SPECIFIC GRAVITY (H2O=1).	1.1 @ 77 Deg. F., 25/25 Deg.C
PH.....	N/D

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT.....	350 Deg. F.
LOWER FLAME LIMIT.....	0.9
HIGHER FLAME LIMIT.....	9.2
EXTINGUISH MEDIA.....	Use water fog or spray, Alcohol Foam, Dry Powder, Carbon Dioxide (CO2).
UNUSUAL FIRE HAZARD.....	Containers may explode from internal pressure if confined to fire. Cool with water. Keep unnecessar people away. Approach fire from upwind side. Avoi breathing smoke ,fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE....	Recommended 5 MG/M3 based on oil mist.

MATERIAL SAFETY DATA SHEET
TRIETHLYLENE GLYCOL REPROCESSED

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	Irritant	Mild irritant	Irritant

HEALTH HAZARDS..... ACUTE: Vapors or liquid may be irritating to sk eyes, or mucous membranes. Avoid inhalation or skin/eye contact.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REG:
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. E irritation develops immediately upon contact.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or sk with plenty of water for at least 15 minutes whi removing contaminated clothing and shoes. Get me attention. Wash clothing before reuse. If swallo do not induce vomiting, get immediate medical attention. If inhaled, remove to fresh air. If breathing, give artificial respiration, preferab mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable

CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupt container.

INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials.

DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxic

HAZARDOUS POLYMERIZATION. Will not occur

POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material an dispose of in accordance with applicable regulatio

WASTE DISPOSAL METHOD.... Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION... When ventilation is not adequate, use of NIOSH approved organic vapor gas cartridge respirator is recommended.

VENTILATION..... Required in closed areas

MECHANICAL EXHAUST..... Required in closed areas

LOCAL EXHAUST..... Desired

PROTECTIVE GLOVES..... Wear impervious gloves

EYE PROTECTION..... Use chemical goggles or full face shield.

OTHER PROTECTIVE EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

MATERIAL SAFETY DATA SHEET
TRIETHLYLENE GLYCOL REPROCESSED

HANDLING AND STORAGE.....	Store away from oxidizers or materials bearing yellow "DOT" label. Keep out of sun and away fr heat. Clean up leaks immediately to prevent soi water contamination.
PRECAUTIONARY MEASURES...	Avoid contact with skin, eyes, and clothing. Af handling this product, wash hands before eating drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first ai action shown in Section V. Use with adequate ventilation.
HAZARD CLASS.....	NON HAZARDOUS
DOT SHIPPING NAME.....	CHEMICALS, NOS
REPORTABLE QUANTITY (RQ).	None
UN NUMBER.....	None
NA #.....	None
PACKAGING SIZE.....	N/A

SECTION X - REGULATORY

EPA ACUTE.....	YES
EPA CHRONIC.....	NO
EPA IGNITABILITY.....	NO
EPA REACTIVITY.....	NO
EPA SUDDEN RELEASE OF PRESSURE.....	NO
CERCLA RQ VALUE.....	None
SARA TPQ.....	None
SARA RQ.....	None
SECTION 313.....	No
EPA HAZARD WASTE #.....	None
CLEANAIR.....	Yes Section 111
CLEAN WATER.....	No

FOOT NOTES N/A - not applicable N/D - no data available
(- means less than) - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Glen White, S.I.S., 817-560-4631

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTO IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. T INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVE TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSI CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: GAS/SPEC (R) CS-PLUS SOLVENT ADDITIVE

Product Code: 29451

Effective Date: 06/30/94 Date Printed: 07/25/95 MSD: 002850

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS#	AMOUNT (%w/w)
Proprietary alkylamine		90 to 100%
Water	CAS# 007732-18-5	Max. 4%

3. HAZARDS IDENTIFICATION

EYE: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN CONTACT: Short single exposure may cause skin burns. Prolonged exposure may cause severe skin burns. DOT classification: corrosive.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. Amounts ingested incidental to industrial handling are not likely to cause injury; however ingestion of larger amounts may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion may cause burns of mouth and throat.

INHALATION: At room temperature, exposures to vapors are unlikely due to physical properties; higher temperatures may generate vapor levels sufficient to cause adverse effects.

SYSTEMIC AND OTHER EFFECTS: Repeated excessive exposures may cause liver and kidney effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have

(Continued on page 2 , over)

no effect on the fetus.

4. FIRST AID

EYES: Immediate and continuous irrigation with flowing water for at least 30 minutes is imperative. Prompt medical consultation is essential.

SKIN: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician if irritation persists. Wash clothing before reuse. Destroy contaminated shoes.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: Corrosive. May cause stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLASH POINT: 160F, 71C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: 1.6%
UFL: 19.6%

AUTOIGNITION TEMPERATURE: 350C; 662F

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large-scale fires, alcohol resistant foams are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run-off water.

FIRE AND EXPLOSION HAZARDS: Keep unnecessary people away; isolate

(Continued on page 3)

hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situations. Fire water run-off may be toxic. See environmental section of this MSDS. When using water spray, boil-over may occur when the product temperature reaches the boiling point of water (tank-type scenarios, not spills). See also 'STORAGE AND HANDLING' section of this MSDS.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS: Wash with small amounts of water. Dike to avoid contamination of sewer with large amounts, soak up with absorbent material, scoop into drums.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Will produce flammable vapors above the flash point.

STORAGE:
Store in a tightly closed container, away from sunlight, in a cool, dry and well ventilated area. Keep away from strong acids and oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S): None established.

VENTILATION: Good general ventilation should be sufficient for most conditions.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes. Remove contaminated clothing

(Continued on page 4 , over)

immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of spashes. Eye wash fountain should be located in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	: 306-324F, 152-162C
VAPOR PRESSURE	: <2.5 mmHg @ 20C
VAPOR DENSITY	: 2.6
SOLUBILITY IN WATER	: Complete
SPECIFIC GRAVITY	: 0.93-0.94 @ 20/20C
FREEZING POINT	: -4.5C, 24F
APPEARANCE	: Colorless liquid
ODOR	: Amine

10. STABILITY AND REACTIVITY

STABILITY: (CONDITIONS TO AVOID) Stable, avoid heat, sparks, and open flames.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Acids, strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion may produce carbon dioxide, toxic carbon monoxide and oxides of nitrogen. Unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

ACUTE SKIN: The dermal LD50 has not been determined.

ACUTE INGESTION: The oral LD50 for rats is between 1000 and 2340 mg/kg.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

(Continued on page 5)

Product: GAS/SPEC (R) CS-PLUS SOLVENT ADDITIVE
Product Code: 29451

Effective Date: 06/30/94 Date Printed: 07/25/95 MSD: 002850

No data available at MSDS effective date.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL METHOD: Dispose by incineration in accordance with all local, state, and federal requirements.

14. TRANSPORT INFORMATION

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

(Continued on page 6 , over)

REGULATORY INFORMATION (CONTINUED)

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Proprietary alkylamine		

HMIRA INFORMATION: A claim for exemption from ingredient disclosure has been filed under the Hazardous Materials Information Review Act (Canada). The Hazardous Materials Information Review Commission registry number, and date, assigned to this claim are:

Claim Registry Number: 3499 Filing Date: June 29, 1994

16. OTHER INFORMATION

PRODUCT USE: Gas conditioning solvent.

REVISION INDICATOR: Revised section 15

The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: GAS/SPEC (R) CS-PLUS SOLVENT

Product Code: 13693

Effective Date: 06/30/94 Date Printed: 01/10/95 MSD: 003430

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Methyldiethanolamine	CAS# 000105-59-9	60-70%
Proprietary Alkylamine		
Water	CAS# 007732-18-5	2.0% MAX

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

****
* Causes severe eye and skin burns. Causes severe burns of the mouth *
* and throat. May be harmful if swallowed. May cause respiratory *
* tract irritation. Combustible liquid and vapor. *
****

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: Due to the pH of the material, it is assumed that exposure may cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN: Short single exposure may cause severe skin burns. Classified as corrosive according to DOT. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The dermal LD50 has not been determined.

INGESTION: Single dose oral toxicity considered to be low. The oral LD50 for rats is >1000 mg/kg. Small amounts swallowed incidental to normal handling are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion

(Continued on page 2 , over)

may cause burns of mouth and throat. Observations in animals include liver and kidney effects.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:
No relevant information found.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

CANCER INFORMATION:
No relevant information found.

REPRODUCTIVE EFFECTS:
No relevant information found.

4. FIRST AID

EYES: Wash eyes immediately and continuously until assistance arrives for transport to medical facility; wash enroute, if possible. If medical assistance is not immediately available, wash for 30 minutes and seek medical attention immediately.

SKIN: Immediate continued and thorough washing in flowing water for 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

INHALATION: Remove to fresh air if effects occur. Consult physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. Eye irrigation may be necessary for an extneded period of time to remove as much caustic as possible. Duration of irrigation and treatment is at the discretion of medical personnel. May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

(Continued on page 3)

FLASH POINT: 192F, 88.9C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: Not established
UFL: Not established

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large scale fires, alcohol resistant foams are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run off water.

FIRE AND EXPLOSION HAZARDS: Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situations. Fire water run off may be toxic. See environmental section of this MSDS. When using water spray, boil over may occur when the product temperature reaches the boiling point of water (tank type scenarios, not spills). See also "storage and handing" section of this MSDS.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS: Wash with small amounts of water. Dike to avoid contamination of sewer with large amounts, soak up with absorbent material, scoop into drums. Keep out of sewers, storm drains, surface waters and soil.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Will produce flammable vapors above the flash

(Continued on page 4 , over)

point.

STORAGE:
Store in a tightly closed container, away from sunlight, in a cool, dry and well ventilated area. Keep away from strong acids and oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S): None established.

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Wear a face shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes. Eye wash fountain should be located in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	:	183C, 361F
VAPOR PRESSURE	:	0.5 mmHg @ 25C
VAPOR DENSITY	:	3.5
SOLUBILITY IN WATER	:	Complete
SPECIFIC GRAVITY	:	1.01 @ 25/25C
FREEZING POINT	:	-23.1C
APPEARANCE	:	Pale straw liquid
ODOR	:	Amine odor

10. STABILITY AND REACTIVITY

STABILITY: (CONDITIONS TO AVOID) Stable, avoid heat, sparks, and open flames.

(Continued on page 5)

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Acids, strong oxidizers, halogenated hydrocarbons.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion may produce carbon dioxide, toxic carbon monoxide and nitrogen oxides. Unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

MUTAGENICITY
No relevant information found.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

No data available at MSDS effective date.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL METHOD: Do not dump into any sewers, on the ground, or into any body of water. For unused or uncontaminated material, the preferred waste management options are to send to a licensed recycler, reclaimer, or incinerator. The same waste management options are recommended for used or contaminated material, although additional evaluation is required (in the U.S. see for example, 40 CFR, Part 261, "Identification and Listing of Hazardous Waste").

Any disposal practice must be in compliance with federal, state/provincial, and local laws and regulations. State/provincial and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Chemcial additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete or otherwise inappropriate. As a service to its customers, Dow can provide lists of companies which recycle, reprocess or manage chemicals. In the U.S. telephone Dow's Customer Information Center at 800/258-2436 for further details.

14. TRANSPORT INFORMATION

(Continued on page 6 , over)

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on

(Continued on page 7)

REGULATORY INFORMATION (CONTINUED)

certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST *
PROPRIETARY INGREDIENT	PROPRIETARY	PAI

PAI=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

B3 - combustible liquid with a flash point between 37.8C and 93.3C
E - corrosive to metal or skin
Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

- - - - -

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

- - - - -

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Methyldiethanolamine	CAS# 000105-59-9	60-70%
Proprietary Alkylamine		

HMIRA INFORMATION: A claim for exemption from ingredient disclosure has been filed under the Hazardous Materials Information Review Act (Canada). The Hazardous Materials Information Review Commission registry number, and date, assigned to this claim are:

(Continued on page 8 , over)

Product: GAS/SPEC (R) CS-PLUS SOLVENT
Product Code: 13693

Effective Date: 06/30/94 Date Printed: 01/10/95 MSD: 003430

REGULATORY INFORMATION (CONTINUED)

Claim Number: 3500 Filing Date: June 29, 1994

16. OTHER INFORMATION

MSDS STATUS: Revised section 15

PRODUCT USE: Gas conditioning solvent.

MATERIAL SAFETY DATA SHEET

ETHYLENE GLYCOL

1	HMIS HEALTH
1	HMIS FLAMMABILITY
0	HMIS REACTIVITY
B	HMIS PERSONAL PROTEC

SECTION I - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC.
(318) 893-3862
EMERGENCY PHONE NUMBER... (318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 2/06/1996
MANUFACTURER'S NAME..... UNION CARBIDE
DOW CHEMICAL
TEXACO
OXY-PETROCHEMICAL

TRADE NAME..... ETHYLENE GLYCOL
CHEMICAL FAMILY..... GLYCOL
CAS NUMBER..... 107-21-1
CHEMICAL FORMULA..... HOCH2CH2OH

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS #
ETHYLENE GLYCOL	100%	ACGIH CEILING 50ppm	107-21-1

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... 9 DEG F
VAPOR PRESSURE (mm Hg)... 0.12 MMHG @ 25 C
VAPOR DENSITY (Air=1).... 2.14
SOLUBILITY IN H20..... COMPLETELY MISCIBLE
APPEARANCE/ODOR..... COLORLESS LIQUID; PRACTICALLY ODORLESS
SPECIFIC GRAVITY (H20=1). 1.1155 @ 20/20 C
PH..... N/A

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 247 DEG F
LOWER FLAME LIMIT..... N/D
HIGHER FLAME LIMIT..... N/D
EXTINGUISH MEDIA..... Water fog or spray, Foam, Dry Powder, Carbon Dioxide (CO2).
UNUSUAL FIRE HAZARD..... NONE KNOWN Approach fire from upwind side. Avoid breathing smoke ,fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... 50 PPM BASED ON ETHYLENE GLYCOL

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	IRRITANT, POSSIBLY NARCOTIC	Not expected to cause significant health hazard	Ingestion of v large amounts could cause serious injury,or even death.

HEALTH HAZARDS..... ACUTE: Vapors may be irritating to eyes, or mucou membranes. Avoid inhalation or eye contact. CHRON Kidney and liver damage possible. May cause reproductive disorders.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULA
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact. Symptoms of overexposure: headache, fatigue, nausea irritation of respiratory tract, dizziness, staggering gait, confusion, unconsciousness.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medica attention. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable

CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.

INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials. Alkaline Materials

DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide

ZARDOUS POLYMERIZATION. Will not occur

OLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL.....	In case of spillage, absorb with inert material dispose of in accordance with applicable regulat
WASTE DISPOSAL METHOD....	Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION...	When ventilation is not adequate, use of NIOSH approved organic vapor/acid gas cartridge respira is recommended.
VENTILATION.....	Required in closed areas
MECHANICAL EXHAUST.....	Required in closed areas
LOCAL EXHAUST.....	Desired
PROTECTIVE GLOVES.....	Wear impervious gloves
EYE PROTECTION.....	Use chemical goggles or full face shield.
OTHER PROTECTIVE EQUIPMENT.....	Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE.....	Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil or water contamination.
PRECAUTIONARY MEASURES...	Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.
HAZARD CLASS.....	Drums - NOT REGULATED Bulk - Class 9
DOT SHIPPING NAME.....	Drum - Ethylene Glycol Bulk - Other regulated substances, liquid, n.o.s. (ethylene glycol)
REPORTABLE QUANTITY (RQ).	5,000 pounds
UN NUMBER.....	None
NA #.....	Drums - None; Bulk - NA3082
PACKAGING SIZE.....	N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... YES
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO
EPA SUDDEN RELEASE OF
PRESSURE..... NO

CERCLA RQ VALUE..... 5,000 pounds

SARA TPQ..... None
SARA RQ..... None
SECTION 313..... YES, ETHYLENE GLYCOL 107-21-1 100%

EPA HAZARD WASTE #..... None
CLEANAIR..... Yes, Section 111 and 1990 Amendments
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
< - means less than > - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Joe Hudman, Coastal Chemical Co., Inc. 713-477-667

IS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOM IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. TH INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY T COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIV CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

7

MATERIAL SAFETY DATA SHEET

COASTALGUARD 100 ANTIFREEZE/COOLANT

1 HM
1 HM
0 HM
B HM

100%

ıc. 713-477-6675

SIST OUR CUSTOMERS
REGULATIONS. THE
AND IS BELIEVED
OR IMPLIED BY THE
IN THE EXCLUSIVE
INE THE
OVERNMENTAL

SECTION I - IDENTIFICATION

DISTRIBUTED BY.....	COASTAL CHEMICAL CO., INC. (318)893-3862
EMERGENCY PHONE NUMBER...	CHEMTREC (800)424-9300
EFFECTIVE DATE.....	2/06/1996
MANUFACTURER'S NAME.....	COASTAL CHEMICAL CO., INC.
TRADE NAME.....	COASTALGUARD 100 ANTIFREEZE/COOL
CHEMICAL FAMILY.....	INHIBITED ETHYLENE GLYCOL SOLUTIC
CAS NUMBER.....	Blended Product
CHEMICAL FORMULA.....	Blended Product

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)
ETHYLENE GLYCOL	95 %	ACGIH CEILING 50ppm

SECTION III - PHYSICAL DATA

FREEZING POINT (F).....	APPROX. 22 DEG F
VAPOR PRESSURE (mm Hg)...	0.12 MMHG @ 25 C
VAPOR DENSITY (Air=1)....	2.14
SOLUBILITY IN H20.....	COMPLETELY MISCIBLE
APPEARANCE/ODOR.....	YELLOW/GREEN LIQUID; PRACTICALLY OL
SPECIFIC GRAVITY (H20=1).	1.11 typical
PH.....	10.5 - 11.0

SECTION IV - FIRE AND EXPLOSION HAZARD DAT

FLASH POINT.....	APPROX. 247 DEG F
LOWER FLAME LIMIT.....	N/D
HIGHER FLAME LIMIT.....	N/D
EXTINGUISH MEDIA.....	Water fog or spray, Foam, Dry Powde (CO2).
UNUSUAL FIRE HAZARD.....	NONE KNOWN Approach fire from upwin breathing smoke ,fumes, mist or vap downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... 50 PPM BASED ON ETHYLENE GLYCOL

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	IRRITANT, POSSIBLY NARCOTIC	Not expected to cause significant health hazard	Ingestion of very large amounts could cause serious injury, or even death.

HEALTH HAZARDS..... ACUTE: Vapors may be irritating to eyes, or mucous membranes. Avoid inhalation or eye contact. CHRONIC: Kidney and liver damage possible. May cause reproductive disorders.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULATED
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact. Symptoms of overexposure: headache, fatigue, nausea, irritation of respiratory tract, dizziness, staggering gait, confusion, unconsciousness.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable
CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.
INCOMPATIBLE MATERIALS... OXIDIZING MATERIALS & OXIDIZERS
DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide
HAZARDOUS POLYMERIZATION. Will not occur
POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL.....	In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations
WASTE DISPOSAL METHOD....	Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION...	When ventilation is not adequate, use of NIOSH approved organic vapor/acid gas cartridge respirator is recommended.
VENTILATION.....	Required in closed areas
MECHANICAL EXHAUST.....	Required in closed areas
LOCAL EXHAUST.....	Desired
PROTECTIVE GLOVES.....	Wear impervious gloves
EYE PROTECTION.....	Use chemical goggles or full face shield.
OTHER PROTECTIVE EQUIPMENT.....	Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE.....	Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil or water contamination.
PRECAUTIONARY MEASURES...	Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.
HAZARD CLASS.....	Drums - Not Regulated Bulk - Class 9
DOT SHIPPING NAME.....	Drums - COASTALGUARD 100 Bulk - Other regulated substances, liquid, n.o.s. (ethylene glycol)
REPORTABLE QUANTITY (RQ).	5000 pounds
UN NUMBER.....	None
NA #.....	Drums - None; Bulk - NA3082
PACKAGING SIZE.....	N/A

SECTION X - REGULATORY

EPA ACUTE.....	YES
EPA CHRONIC.....	YES
EPA IGNITABILITY.....	NO
EPA REACTIVITY.....	NO

EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... 5000 pound for ethylene glycol

SARA TPQ..... None
SARA RQ..... None
SECTION 313..... YES, ETHYLENE GLYCOL 107-21-1 95% (1/1/87)

EPA HAZARD WASTE #..... None
CLEANAIR..... Yes, Section 111 Volatile Organic Compounds & Section 112 Statutory Air Pollutants (1990 Amendments)
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
< - means less than > - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... David Trahan, C.F.T. - 318-898-0001

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMERS IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY THE COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: DIETHANOLAMINE LOW FREEZING GRADE

Product Code: 21106

Effective Date: 03/01/96 Date Printed: 04/27/96 MSD: 000904

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Diethanolamine	CAS# 000111-42-2	85%
Water	CAS# 007732-18-5	15%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

****

* Colorless liquid. Slight ammonia odor. Causes eye burns. *

****

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause severe irritation with corneal injury.

SKIN: Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if skin is abraded (scratched or cut). A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Not classified as corrosive according to DOT.

INGESTION: Single dose oral toxicity is low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Observations in animals include liver and kidney effects following single oral doses. Ingestion may cause gastrointestinal irritation or ulceration.

(Continued on page 2 , over)

INHALATION: At room temperature, exposures to vapors are minimal due to physical properties; higher temperatures may generate vapor levels sufficient to cause irritation and other effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Results from repeated exposure tests on diethanolamine in laboratory animals include anemia (rats) and effects on kidney (rats and mice) and liver (mice). Heart and nervous system effects were also observed in these animals given exaggerated doses. Changes in other organs, causes of which are nonspecific, were judged secondary to the poor health of the animals due to the extremely high doses of diethanolamine given.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects; other fetal effects occurred only at doses toxic to the mother.

4. FIRST AID

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagscopic control. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: * None
METHOD USED: Setaflash
AUTOIGNITION TEMPERATURE:

* No flash point observed up to the boiling point. Flash point of

(Continued on page 3)

diethanolamine is 325F, 163C by Setaflash.

FLAMMABILITY LIMITS
LFL: Not determined.
UFL: Not determined.

HAZARDOUS COMBUSTION PRODUCTS:

EXTINGUISHING MEDIA: Water fog, alcohol foam, CO2, dry chemical.

FIRE FIGHTING INSTRUCTIONS: Not available.

PROTECIVE EQUIPMENT FOR FIRE FIGHTERS: Wear self-contained, possitive-pressure breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Clear non-emergency personnel from the area.

PROTECT THE ENVIRONMENT: Do not allow into sewers, on the ground, or into any body of water.

CLEANUP: Use a noncombustible absorbent such as sand and shovel into suitable containers. Do not use sawdust, wood chips or other cullulosic materials to absorb the spill.

7. HANDLING AND STORAGE

HANDLING: Prevent eye and skin contact. Avoid breathing vapors. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the auto-ignition temperature possibly resulting in spontaneous combustion.

STORAGE: Do not store in common area with halogenated materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

PERSONAL PROTECTIVE EQUIPMENT

(Continued on page 4 . over)

EYE/FACE PROTECTION: Use chemical goggles.

SKIN PROTECTION: When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

RESPIRATORY PROTECTION: For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

EXPOSURE GUIDELINE(S): Diethanolamine: ACGIH TLV is 2 mg/m3, skin; OSHA PEL is 3 ppm. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless liquid.
ODOR: Slight ammoniacal odor.
VAPOR PRESSURE: Low.
VAPOR DENSITY: Not determined.
BOILING POINT: 244F, 118C
SOLUBILITY IN WATER: Completely miscible.
SPECIFIC GRAVITY: 1.08 @ 25/4C
FREEZING POINT: 28F, -2C

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: This product should not be heated above 60C in the presence of aluminum due to excessive corrosion and potential chemical reaction releasing flammable hydrogen gas.

INCOMPATIBILITY WITH OTHER MATERIALS: Strong oxidizers, strong acids. Product may potentially react with various halogenated organic solvents, resulting in temperature and/or pressure increases.

HAZARDOUS DECOMPOSITION PRODUCTS: Possible nitrogen oxides.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

(Continued on page 5)

SKIN: The LD50 for skin absorption in rabbits is greater than 8,200 mg/kg (for diethanolamine).

INGESTION: The oral LD50 for rats is greater than 680 mg/kg (for diethanolamine).

MUTAGENICITY: In vitro mutagenicity studies were negative. (for diethanolamine).

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Based largely or completely on data for major component(s). Bioconcentration potential is low (BCF less than 100 or Log Kow less than 3). Log octanol/water patition coefficient (log Kow) is -1.43. Henry's Law Constant (H) is 5.35E-14 atm m3/mol.

DEGRADATION & TRANSFORMATION: Based largely or completely on data for major component(s). Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). 5-Day biochemical oxygen demand (BOD5) is 0.22 p/p. 10-Day biochemical oxygen demand (BOD10) is 0.74 p/p. 20-Day biochemical oxygen demand (BOD20) is 1.20 p/p. Theoretical oxygen demand (ThOD) is calculated to be 2.13 p/p. Inhibitory concentration (IC50) in OECD "Activated Sludge, Respiration Inhibition Test" (Guideline #209) is > 1000 mg/L. Material is ultimately biodegradable. Reaches more than 70% mineralization in OECD test for inherent biodegradability: Zahn-Wellens; 94% DOC removal in 14 days.

ECOTOXICOLOGY: Based largely or completely on data for major component(s). Material is slightly toxic to aquatic organisms on an acute basis (LC50 between 10 and 100 mg/L in most sensitive species). Acute LC50 for fathead minnow (Pimephales promelas) is 1460-1664 mg/L. Acute LC50 for bluegill (Lepomis macrochirus) is 1850-2100 mg/L. Acute LC50 for water flea (Daphnia magna) is 55-306 mg/L. Acute LC50 for the cladoceran Ceriodaphnia dubia is 30-160 mg/L. Acute LC50 for goldfish (Carassius auratus) is 800 to > 5000 mg/L at pH 9.7 and pH 7.0, respectively. Acute LC50 for mosquito fish (Gambusia affinis) is 1400-1800 mg/L.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

(Continued on page 6 , over)

DISPOSAL: Any disposal practice must be in compliance with all federal, state/provincial, and local laws and regulations. State/provincial and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Regulations may also vary in different locations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. None of these waste management options should be considered 'arranging for disposal'.

Do not allow into any sewers, on the ground, or into any body of water.

The preferred waste management option is to send to a properly properly licensed or permitted incinerator.

As a service to its customers, Dow can provide lists of companies which recycle, reprocess, or manage chemicals. In the U.S., telephone Dow's Customer Information Center at 517-832-1556 or 800-258-2436 (U.S.) for further details.

14. TRANSPORT INFORMATION

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

DEPARTMENT OF TRANSPORTATION (D.O.T.):

For DOT regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply

(Continued on page 7)

with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
DIETHANOLAMINE	000111-42-2	86 %

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
DIETHANOLAMINE	000111-42-2	NJ3 PA1 PA3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

(Continued on page 8 , over)

BURLINGTON RESOURCES

SAN JUAN DIVISION

December 27, 2000

Oil Conservation Division
Attn: Martyne Keiling
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Re: Characterization of Drained Water from Used Oil Tank

Dear Ms. Keeling:

Attached is a Certificate of Waste Status form and a wastewater analysis for water generated from draining the used oil tank at the compressor stations. The main purpose for analyzing these waste streams was to comply with 40 CFR 262.11 waste determination requirements contained in the Resource Conservation and Recovery Act (RCRA). Upon evaluating the analysis for this waste stream it appears the water does **not** exhibit the characteristics of a hazardous waste.

Due to the fact that this waste stream has been analyzed in two consecutive years and each time showing the waste is non-hazardous, Burlington Resources requests that the non-hazardous determination be accepted for a period of two years from the date of sample collection and analysis. If processes or products change that may impact this waste stream, a new analysis will be completed.

Should you have any questions concerning the content or need additional information, please feel free to contact me at 326-9537. Thank you for your time and consideration.

Sincerely,

Gregg Wurtz
Environmental Representative

Enc. Certificate of Waste Status
Sample Project CC-59463

CC:

Bruce Gantner
Greg Kardos
Ken Johnson
Correspondence
Compressor Files
Mike Talovichl

3401 East 30th St.. 87402, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Burlington Resources 3535 East 30 th Street Farmington NM 87401	Key Energy Services

3. Originating Site (name):	Location of the Waste (Street address /or ULSTR):
All Compressor Stations	See Attached.
Unit:	Section: Township: Range:

4. Source and Description of Waste:

Drained water from oil tank.

I, Gregg Wurtz **representative for:**

Burlington Resources **do hereby certify that,**

according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check the appropriate classification)

☐ **EXEMPT oilfield waste**

☑ **NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification.**

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (chech appropriate items):

___ **MSDS Information**

_X_ **RCRA Hazardous Waste Analysis**

_X_ **Chain of Custody**

___ **Other (description):**

Name (Original Signature): Gregg Wurtz

Title: Env. Representative

Date: Wednesday, December 27, 2000

imi

Inter·Mountain Laboratories, Inc.

hone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Ed Hasely
Burlington Resources
P.O. Box 4289
Farmington, NM 87499-4289

Dec. 13, 1999

Mr. Hasely:

Please find enclosed the reports for the samples submitted to our laboratory for analysis on November 23, 1999. I apologize for the delay in receiving your results.

If you should have any questions regarding the results of these analyses, please do not hestitate to call me at your convenience.

Sincerely,

Sharon Williams

Sharon Williams
Organics Lab Supervisor

Enclosures

xc: file

iml Inter-Mountain Laboratories, Inc.
hone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

BURLINGTON RESOURCES

Case Narrative

On November 23, 1999, samples were submitted to Inter-Mountain Laboratories for analyis. The samples were analyzed for the parameters listed on the accompanying chain of custody document.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analyses of the samples reported herein are found in Test Methods For Evaluation of Solid Waste, SW-846, USEPA, and Methods For Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1994.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call me at your conveneince.

Sincerely,

Sharon Williams
Organic Analyst/Farmington

Inter-Mountain Laboratories, Inc.

one (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Compressor Stations
Sample ID: Water From Used Oil Tank
Lab ID: 0399W05762
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 12/13/99
Date Sampled: 11/23/99
Date Received: 11/23/99
Date Analyzed: 12/03/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP Metals - EPA Method 1311				
Arsenic	<0.1	0.1	5.0	mg/L
Barium	<0.5	0.5	100	mg/L
Cadmium	<0.01	0.01	1.0	mg/L
Chromium	0.05	0.02	5.0	mg/L
Lead	<0.1	0.1	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	0.23	0.1	1.0	mg/L
Silver	<0.05	0.05	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By: _____
William Lipps

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Flash Point

Client:	**Burlington Resources**		
Project:	Compressor Stations	Date Reported:	12/13/99
Sample ID:	Water From Used Oil Tank	Date Sampled:	11/23/99
Laboratory ID:	0399W05762	Date Received:	11/23/99
Sample Matrix:	Liquid	Date Analyzed:	12/07/99
Condition:	Intact		

Analyte	Result	Units
Flash Point	>140	°F

References:

Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical / Chemical Methods" United States Environmental Protection Agency 3rd Edition, Final Update II, September, 1994.

Annual Book of ASTM Standards, Method D56.

Reported by: _____

Reviewed by: _____

imL

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Burlington Resources**	Date Reported:	12/08/99
Project ID:	Compressor Stations	Date Sampled:	11/23/99
Sample ID:	Water from used oil tanks	Date Received:	11/24/99
Laboratory ID:	0399W05762	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	12/01/99

Parameter	Analytical Result	Detection Limit	Regulatory Level	Units
Benzene	ND	0.05	0.5	mg/L
Carbon Tetrachloride	ND	0.05	0.5	mg/L
Chlorobenzene	ND	0.05	100	mg/L
Chloroform	ND	0.05	6.0	mg/L
1,2-Dichloroethane	ND	0.05	0.5	mg/L
1,1-Dichloroethylene	ND	0.05	0.7	mg/L
Methyl Ethyl Ketone (2-Butanone)	ND	1.25	200	mg/L
Tetrachloroethylene	ND	0.05	0.7	mg/L
Trichloroethylene	ND	0.05	0.5	mg/L
Vinyl Chloride	ND	0.05	0.2	mg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	97	86 - 118
Dichloroethane-d4	91	80 - 120
Toluene-d8	90	88 - 110
4-Bromofluorobenzene	92	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

iml

Inter-Mountain Laboratories, Inc.

hone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

QUALITY CONTROL / QUALITY ASSURANCE

imL

Inter-Mountain Laboratories, Inc.

hone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Spike Analysis / Blank Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client: **Burlington Resources**
Project: Compressor Stations
Sample Matrix: Liquid

Date Reported: 12/13/99
Date Analyzed: 12/03/99
Date Received: 11/23/99

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Arsenic	0.97	<0.1	1.00	**97%**
Barium	0.98	<0.5	1.00	**98%**
Cadmium	0.79	<0.01	1.00	**79%***
Chromium	0.88	<0.01	1.00	**88%**
Lead	0.68	<0.1	1.00	**68%***
Mercury	0.005	<0.001	0.005	**102%**
Selenium	1.20	<0.1	1.00	**120%***
Silver	0.74	<0.05	1.00	**74%***

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Arsenic	**ND**	0.1	mg/L
Barium	**ND**	0.5	mg/L
Cadmium	**ND**	0.01	mg/L
Chromium	**ND**	0.02	mg/L
Lead	**ND**	0.1	mg/L
Mercury	**ND**	0.001	mg/L
Selenium	**ND**	0.1	mg/L
Silver	**ND**	0.05	mg/L

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments: *Spike recovery failed to meet established QC limits due to matrix interferences.

Reported by _____

Reviewed by _____

iml

Inter·Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client:	**Burlington Resources**	Date Reported:	12/13/99
Project:	Compressor Stations	Date Analyzed:	12/03/99
Sample Matrix:	Liquid	Date Received:	11/23/99

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Arsenic	1.01	1.00	**101%**	mg/L
Barium	0.51	0.50	**102%**	mg/L
Cadmium	1.03	1.00	**92%**	mg/L
Chromium	1.06	1.00	**106%**	mg/L
Lead	1.04	1.00	**104%**	mg/L
Mercury	0.004	0.004	**100%**	mg/L
Selenium	0.53	0.50	**106%**	mg/L
Silver	1.05	1.00	**105%**	mg/L

References:

Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

imL Inter-Mountain Laboratories, Inc.
hone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID: Method Blank
Laboratory ID: V3MB99-335
Sample Matrix: Water

Date Reported: 12/08/99
Date Extracted: NA
Date Analyzed: 12/01/99

Parameter	Analytical Result	Detection Limit	Regulatory Level	Units
Benzene	ND	0.01	0.5	mg/L
Carbon Tetrachloride	ND	0.01	0.5	mg/L
Chlorobenzene	ND	0.01	100	mg/L
Chloroform	ND	0.01	6.0	mg/L
1,2-Dichloroethane	ND	0.01	0.5	mg/L
1,1-Dichloroethylene	ND	0.01	0.7	mg/L
Methyl Ethyl Ketone (2-Butanone)	ND	0.25	200	mg/L
Tetrachloroethylene	ND	0.01	0.7	mg/L
Trichloroethylene	ND	0.01	0.5	mg/L
Vinyl Chloride	ND	0.01	0.2	mg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	94	86 - 118
Dichloroethane-d4	93	80 - 120
Toluene-d8	89	88 - 110
4-Bromofluorobenzene	92	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Blank Spike/Duplicate Analysis

Sample ID: Blank Spike Duplicate
Laboratory ID: BSD99-336
Sample Matrix: Water

Date Reported: 12/08/99
Date Extracted: NA
Date Analyzed: 12/02/99

Parameter	Analytical Result mg/L	Spike Added mg/L	Spike Results mg/L	Spike Recovery %	Duplicate Results mg/L	Duplicate Recovery %	Relative Difference %RSD
Benzene	ND	0.050	0.050	99	0.053	106	7
Carbon Tetrachloride	ND	0.050	0.054	109	0.057	113	4
Chlorobenzene	ND	0.050	0.050	99	0.053	106	7
Chloroform	ND	0.050	0.056	112	0.060	121	7
1,2-Dichloroethane	ND	0.050	0.049	98	0.057	113	15
1,1-Dichloroethylene	ND	0.050	0.046	91	0.047	94	3
Methyl Ethyl Ketone (2-Butanone)	ND	0.100	0.102	102	0.115	115	12
Tetrachloroethylene	ND	0.050	0.055	110	0.058	115	4
Trichloroethylene	ND	0.050	0.052	103	0.055	111	7
Vinyl Chloride	ND	0.050	0.052	105	0.052	104	0

ND - Compound not detected at stated Detection Limit.

Surrogate Recoveries	Spike %	Duplicate %	Limits
Dibromofluoromethane	96	102	86 - 118
Dichloroethane-d4	90	101	80 - 120
Toluene-d8	92	92	88 - 110
4-Bromofluorobenzene	95	94	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste. SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Matrix Spike Analysis

Sample ID: Matrix Spike
Laboratory ID: 0199W19088MS
Sample Matrix: Water

Date Reported: 12/08/99
Date Extracted: NA
Date Analyzed: 12/02/99

Parameter	Analytical Result mg/L	Spike Added mg/L	Spike Results mg/L	Spike Recovery %
Benzene	ND	0.050	0.054	108
Carbon Tetrachloride	ND	0.050	0.059	119
Chlorobenzene	ND	0.050	0.054	109
Chloroform	ND	0.050	0.061	121
1,2-Dichloroethane	ND	0.050	0.054	108
1,1-Dichloroethylene	ND	0.050	0.050	100
Methyl Ethyl Ketone (2-Butanone)	ND	0.100	0.084	84
Tetrachloroethylene	ND	0.050	0.059	118
Trichloroethylene	ND	0.050	0.057	113
Vinyl Chloride	ND	0.050	0.054	108

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	98	86 - 118
Dichloroethane-d4	96	80 - 120
Toluene-d8	92	88 - 110
4-Bromofluorobenzene	95	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste. SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

imL Inter·Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis
FLASH POINT

Client:	**Burlington Resources**	Date Reported:	12/13/99
Project:	Compressor Stations	Date Analyzed:	12/07/99
Sample Matrix:	Liquid	Date Received:	11/23/99

Parameter	Found Result	Known Result
p-Xylene	76°F	77°F

Reference: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical / Chemical Methods" United States Environmental Protection Agency 3rd Edition, Final Update II, September, 1994.

Annual Book of ASTM Standards, Method D93-80.

Comments:

Reported by _____ Reviewed by _____

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Burlington Resources / Oil Tank Water	Compressor Stations
Sampler: (Signature)	**Chain of Custody Tape No.**

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TCLP Metals	TCLP Benzene	Flash		Remarks
Water from Used Oil Tank	11/23		W05762	Liquid	3	✓				IML to make
"	"			"	6		✓			Composite in Lab
"	"			"	3			✓		

Pump Canyon
Arch Rock
Hart Canyon

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ed Hasely	11/23/99	12 Noon	Dan Martinez		
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Dan Martinez	11/23/99	14:15			
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			[illegible]	[illegible]	[illegible]

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Drive, Bozeman, Montana 59718, Telephone (406) 586-8450

☐ 11183 State Hwy. 30, College Station, TX 77845, Telephone (409) 776-8945

59463

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Burlington Resources 3535 East 30 th Street Farmington NM 87401	Key Energy Services
3. Originating Site (name): All Compressor Stations	**Location of the Waste (Street address /or ULSTR):** See Attached. **Unit:** **Section:** **Township:** **Range:**
4. Source and Description of Waste: Drained water from oil tank.	

I, Gregg Wurtz **representative for:**

Burlington Resources **do hereby certify that,**

according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check the appropriate classification)

☐ **EXEMPT oilfield waste**

☑ **NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification.**

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (chech appropriate items):

__ **MSDS Information**
X **RCRA Hazardous Waste Analysis**
X **Chain of Custody**
__ **Other (description):**

Name (Original Signature): Gregg Wurtz
Title: Env. Representative
Date: Wednesday, December 27, 2000

imi

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Ed Hasely
Burlington Resources
P.O. Box 4289
Farmington, NM 87499-4289

Dec. 13, 1999

Mr. Hasely:

Please find enclosed the reports for the samples submitted to our laboratory for analysis on November 23, 1999. I apologize for the delay in receiving your results.

If you should have any questions regarding the results of these analyses, please do not hestitate to call me at your convenience.

Sincerely,

Sharon Williams

Sharon Williams
Organics Lab Supervisor

Enclosures

xc: file

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

BURLINGTON RESOURCES

Case Narrative

On November 23, 1999, samples were submitted to Inter-Mountain Laboratories for analyis. The samples were analyzed for the parameters listed on the accompanying chain of custody document.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analyses of the samples reported herein are found in Test Methods For Evaluation of Solid Waste, SW-846, USEPA, and Methods For Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1994.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call me at your conveneince.

Sincerely,

Sharon Williams

Organic Analyst/Farmington

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Compressor Stations
Sample ID: Water From Used Oil Tank
Lab ID: 0399W05762
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 12/13/99
Date Sampled: 11/23/99
Date Received: 11/23/99
Date Analyzed: 12/03/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP Metals - EPA Method 1311				
Arsenic	<0.1	0.1	5.0	mg/L
Barium	<0.5	0.5	100	mg/L
Cadmium	<0.01	0.01	1.0	mg/L
Chromium	0.05	0.02	5.0	mg/L
Lead	<0.1	0.1	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	0.23	0.1	1.0	mg/L
Silver	<0.05	0.05	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, Final Update 1, July 1992.

Reviewed By: _____
William Lipps

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Flash Point

Client:	**Burlington Resources**		
Project:	Compressor Stations	Date Reported:	12/13/99
Sample ID:	Water From Used Oil Tank	Date Sampled:	11/23/99
Laboratory ID:	0399W05762	Date Received:	11/23/99
Sample Matrix:	Liquid	Date Analyzed:	12/07/99
Condition:	Intact		

Analyte	Result	Units
Flash Point	>140	°F

References:

Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical / Chemical Methods" United States Environmental Protection Agency 3rd Edition, Final Update II, September, 1994.

Annual Book of ASTM Standards, Method D56.

Reported by: SW

Reviewed by:

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Burlington Resources**	Date Reported:	12/08/99
Project ID:	Compressor Stations	Date Sampled:	11/23/99
Sample ID:	Water from used oil tanks	Date Received:	11/24/99
Laboratory ID:	0399W05762	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	12/01/99

Parameter	Analytical Result	Detection Limit	Regulatory Level	Units
Benzene	ND	0.05	0.5	mg/L
Carbon Tetrachloride	ND	0.05	0.5	mg/L
Chlorobenzene	ND	0.05	100	mg/L
Chloroform	ND	0.05	6.0	mg/L
1,2-Dichloroethane	ND	0.05	0.5	mg/L
1,1-Dichloroethylene	ND	0.05	0.7	mg/L
Methyl Ethyl Ketone (2-Butanone)	ND	1.25	200	mg/L
Tetrachloroethylene	ND	0.05	0.7	mg/L
Trichloroethylene	ND	0.05	0.5	mg/L
Vinyl Chloride	ND	0.05	0.2	mg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	97	86 - 118
Dichloroethane-d4	91	80 - 120
Toluene-d8	90	88 - 110
4-Bromofluorobenzene	92	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

QUALITY CONTROL / QUALITY ASSURANCE

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Spike Analysis / Blank Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client:	**Burlington Resources**	Date Reported:	12/13/99
Project:	Compressor Stations	Date Analyzed:	12/03/99
Sample Matrix:	Liquid	Date Received:	11/23/99

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Arsenic	0.97	<0.1	1.00	**97%**
Barium	0.98	<0.5	1.00	**98%**
Cadmium	0.79	<0.01	1.00	**79%***
Chromium	0.88	<0.01	1.00	**88%**
Lead	0.68	<0.1	1.00	**68%***
Mercury	0.005	<0.001	0.005	**102%**
Selenium	1.20	<0.1	1.00	**120%***
Silver	0.74	<0.05	1.00	**74%***

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Arsenic	**ND**	0.1	mg/L
Barium	**ND**	0.5	mg/L
Cadmium	**ND**	0.01	mg/L
Chromium	**ND**	0.02	mg/L
Lead	**ND**	0.1	mg/L
Mercury	**ND**	0.001	mg/L
Selenium	**ND**	0.1	mg/L
Silver	**ND**	0.05	mg/L

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments: *Spike recovery failed to meet established QC limits due to matrix interferences.

Reported by _____

Reviewed by _____

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client:	**Burlington Resources**	Date Reported:	12/13/99
Project:	Compressor Stations	Date Analyzed:	12/03/99
Sample Matrix:	Liquid	Date Received:	11/23/99

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Arsenic	1.01	1.00	**101%**	mg/L
Barium	0.51	0.50	**102%**	mg/L
Cadmium	1.03	1.00	**92%**	mg/L
Chromium	1.06	1.00	**106%**	mg/L
Lead	1.04	1.00	**104%**	mg/L
Mercury	0.004	0.004	**100%**	mg/L
Selenium	0.53	0.50	**106%**	mg/L
Silver	1.05	1.00	**105%**	mg/L

References:

Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID: Method Blank
Laboratory ID: V3MB99-335
Sample Matrix: Water

Date Reported: 12/08/99
Date Extracted: NA
Date Analyzed: 12/01/99

Parameter	Analytical Result	Detection Limit	Regulatory Level	Units
Benzene	ND	0.01	0.5	mg/L
Carbon Tetrachloride	ND	0.01	0.5	mg/L
Chlorobenzene	ND	0.01	100	mg/L
Chloroform	ND	0.01	6.0	mg/L
1,2-Dichloroethane	ND	0.01	0.5	mg/L
1,1-Dichloroethylene	ND	0.01	0.7	mg/L
Methyl Ethyl Ketone (2-Butanone)	ND	0.25	200	mg/L
Tetrachloroethylene	ND	0.01	0.7	mg/L
Trichloroethylene	ND	0.01	0.5	mg/L
Vinyl Chloride	ND	0.01	0.2	mg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	94	86 - 118
Dichloroethane-d4	93	80 - 120
Toluene-d8	89	88 - 110
4-Bromofluorobenzene	92	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

imL
Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Blank Spike/Duplicate Analysis

Sample ID: Blank Spike Duplicate
Laboratory ID: BSD99-336
Sample Matrix: Water

Date Reported: 12/08/99
Date Extracted: NA
Date Analyzed: 12/02/99

Parameter	Analytical Result mg/L	Spike Added mg/L	Spike Results mg/L	Spike Recovery %	Duplicate Results mg/L	Duplicate Recovery %	Relative Difference %RSD
Benzene	ND	0.050	0.050	99	0.053	106	7
Carbon Tetrachloride	ND	0.050	0.054	109	0.057	113	4
Chlorobenzene	ND	0.050	0.050	99	0.053	106	7
Chloroform	ND	0.050	0.056	112	0.060	121	7
1,2-Dichloroethane	ND	0.050	0.049	98	0.057	113	15
1,1-Dichloroethylene	ND	0.050	0.046	91	0.047	94	3
Methyl Ethyl Ketone (2-Butanone)	ND	0.100	0.102	102	0.115	115	12
Tetrachloroethylene	ND	0.050	0.055	110	0.058	115	4
Trichloroethylene	ND	0.050	0.052	103	0.055	111	7
Vinyl Chloride	ND	0.050	0.052	105	0.052	104	0

ND - Compound not detected at stated Detection Limit.

Surrogate Recoveries	Spike %	Duplicate %	Limits
Dibromofluoromethane	96	102	86 - 118
Dichloroethane-d4	90	101	80 - 120
Toluene-d8	92	92	88 - 110
4-Bromofluorobenzene	95	94	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	12/08/99
Laboratory ID:	0199W19088MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	12/02/99

Parameter	Analytical Result mg/L	Spike Added mg/L	Spike Results mg/L	Spike Recovery %
Benzene	ND	0.050	0.054	108
Carbon Tetrachloride	ND	0.050	0.059	119
Chlorobenzene	ND	0.050	0.054	109
Chloroform	ND	0.050	0.061	121
1,2-Dichloroethane	ND	0.050	0.054	108
1,1-Dichloroethylene	ND	0.050	0.050	100
Methyl Ethyl Ketone (2-Butanone)	ND	0.100	0.084	84
Tetrachloroethylene	ND	0.050	0.059	118
Trichloroethylene	ND	0.050	0.057	113
Vinyl Chloride	ND	0.050	0.054	108

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Limits
Dibromofluoromethane	98	86 - 118
Dichloroethane-d4	96	80 - 120
Toluene-d8	92	88 - 110
4-Bromofluorobenzene	95	86 - 116

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Analyst

Reviewed

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis

FLASH POINT

Client:	**Burlington Resources**	Date Reported:	12/13/99
Project:	Compressor Stations	Date Analyzed:	12/07/99
Sample Matrix:	Liquid	Date Received:	11/23/99

Parameter	Found Result	Known Result
p-Xylene	76°F	77°F

Reference: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical / Chemical Methods" United States Environmental Protection Agency 3rd Edition, Final Update II, September, 1994.

Annual Book of ASTM Standards, Method D93-80.

Comments:

Reported by _____

Reviewed by _____

iml Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: Burlington Resources / Oil Tank Water

Project Location: Compressor Stations

Sampler: (Signature)

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TCLP Metals	TCLP Benzene	Flash		Remarks
Water from Used Oil Tank	11/23		W05762	Liquid	3	✓				IML to make Composite in Lab
"	"			"	6		✓			
"	"			"	3			✓		

Pump Canyon
Arch Rock
Hart Canyon

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ed Hasely	11/23/99	12 Noon	Ben Martinez		
Ben Martinez	11/23/99	14:15			
			Received by laboratory: (Signature) Jean [illegible]	[illegible]	14:[illegible]

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Drive, Bozeman, Montana 59718, Telephone (406) 586-8450
- ☐ 11183 State Hwy. 30, College Station, TX 77845, Telephone (409) 776-8945

59463

Product: DIETHANOLAMINE LOW FREEZING GRADE
Product Code: 2116

Effective Date: 03/01/96 Date Printed: 04/27/96 MSD: 000904

REGULATORY INFORMATION (CONTINUED)

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:
Category:

Chemical Name	CAS#	RQ	% in Product
Diethanolamine	000111-42-2	100 lb	85%

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2B - eye or skin irritant
Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Diethanolamine	CAS# 000111-42-2	85%

16. OTHER INFORMATION

REVISION INDICATOR: Revised section 14.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒ Verbal Approval Received: Yes ☐ No ☒	4. Generator WFS 5. Originating Site EL CEDRO
2. Management Facility Destination KEY DISPOSAL	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 AZTEC NM	8. State NM
7. Location of Material (Street Address or ULSTR) HWY 64 MM 100.5 BLANCO NM 87412	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

WASH DOWN WATER FROM PROCESSING AND COMPRESSION

DEC 2000
RECEIVED
OIL CON. DIV.
DIST. 3

Estimated Volume 50-500 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE Michael Talovich TITLE: MOR DATE: 12-27-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: Denny Foust TITLE: Geologist DATE: 12/27/00

APPROVED BY: Martyne J. Kelly TITLE: Environmental Geologist DATE: 1/11/01

1625 N. French Dr
Hobbs, NM 88240
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131
2040 S. Pacheco
Santa Fe, NM 87505

Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

3/15/00

Submit to OCD Permitted Surface Waste Management Facility

GENERATOR CERTIFICATE OF WASTE STATUS

1. Waste Generator Name and Address:
WILLIAMS FIELD SERVICES
187 CR # 4980
BLOOMFIELD, NM 87413

2. Permit Number (if waste generated at an OCD permitted facility)
—

3. Description of Waste and Generating Process:
NATURAL GAS PROCESSING AND COMPRESSION
WASH DOWN WATER CONTAINING DIMINIMUS QUANTITES OF OIL AND GLYCOL

4. Location of Waste (Street address &/or ULSTR):
HWY 64, MILE MARKER 100.5
BLANCO, NM 87412

5. Destination (Surface Waste Management Facility):
KEY DISPOSAL

6. Transporter: VARIOUS, TO BE DETERMINED

7. Estimated Volume _____ cy/bbls
50-500 BBLS/MO

For **NON-EXEMPT** waste only, the following documentation is attached (check appropriate items):

_____ MSDS Information

_X_ RCRA Hazardous Waste Analysis (With Chain of Custody).

_____ Other (Description)

Generator certifies that, according to the Resource Conservation and Recovery Act (RCRA) and the Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (check appropriate classification)

_____ **EXEMPT** oilfield waste.

_X_ **NON-EXEMPT** oilfield waste that is non-hazardous pursuant to 40 CFR Part 261. (Attach appropriate documentation)

In addition, Generator certifies that nothing has been added to this exempt or non-exempt non-hazardous waste and that this waste does not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403.

Generator Signature: M L Harvey ON BEHALF OF WILLIAMS Date: 12-20-00

Print Name: MARK HARVEY FOR WFS

Title: PROJECT COORDINATOR

QWAL LABORATORIES, INC.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: **REFERENCE #:** 0012382

SENT TO: ***WILLIAMS GAS PIPELINE***
187 COUNTY ROAD # 4980
BLOOMFIELD, NM 87413
JIM STRUHS
PROJECT: ELCEDRO WASTE WATER

DATE REPORTED: **12/21/00**
DATE COLLECTED: **12/12/00**
DATE RECEIVED: **12/14/00**

Reference Fraction:0012382-01A
Sample ID: EL CEDRO-N-WW TANK
Sample Date Collected: **12/12/0012:40:00**

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
PH	EPA 150.1	7.2	SU		12/14/00	SLR
REACTIVITY	SW 846SEE ATTAC		HED REPOR		12/20/00	KW
METAL PREPARATION	EPA 3050IS001215A				12/15/00	RDC
SILVER, TOTAL	SW 846 6010B	<0.25	MG/L	0.25	12/15/00	RDC
ARSENIC, TOTAL	SW 846 6010B	<0.25	MG/L	0.25	12/15/00	RDC
BARIUM, TOTAL	SW 846 6010B	1.75	MG/L	0.125	12/15/00	RDC
CADMIUM, TOTAL	SW 846 6010B	0.48	MG/L	0.125	12/15/00	RDC
CHROMIUM, TOTAL	SW 846 6010B	0.37	MG/L	0.25	12/15/00	RDC
MERCURY, TOTAL	SW 846 7470	0.0605	MG/L	0.0002	12/15/00	XM
LEAD, TOTAL	SW 846 6010B	1.75	MG/L	0.25	12/15/00	RDC
SELENIUM, TOTAL	SW 846 6010B	0.25	MG/L	0.25	12/15/00	RDC
SAMPLE RECEIVED EMPT	N/A *****		N/A			
TPH GRO	8015G/OA1	225000	UG/L	5000	12/14/00	KKL
BTEX	OA1/8021B			3.0		
BENZENE		665	UG/L	100	12/14/00	KKL
TOLUENE		6940	UG/L	100	12/14/00	KKL
ETHYLBENZENE		906	UG/L	100	12/14/00	KKL
TOTAL XYLENES		9850	UG/L	100	12/14/00	KKL
BFB (SURROGATE)		103	125	75		

ND=NONE DETECTED
PQL=PRACTICAL QUANTITAION LIMIT
SU=STANDARD UNITS
B=DETECTED IN METHOD BLANK

APPROVED BY: _____

TERRY KOESTER
LABORATORY DIRECTOR

QWAL LABORATORIES, INC.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: **REFERENCE #:** 0012382

SENT TO: ***WILLIAMS GAS PIPELINE***
187 COUNTY ROAD # 4980
BLOOMFIELD, NM 87413
JIM STRUHS
PROJECT: ELCEDRO WASTE WATER

DATE REPORTED: 12/21/00
DATE COLLECTED: 12/12/00
DATE RECEIVED: 12/14/00

Reference Fraction:0012382-02A
Sample ID: EL CEDRO-S-WW TANK
Sample Date Collected: 12/12/0012:05:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
PH	EPA 150.1	8.6	SU		12/14/00	SLR
REACTIVITY	SW 846SEE ATTAC		HED REPOR		12/20/00	KW
METAL PREPARATION	EPA 3010 IL001214				12/14/00	JH
SILVER, TOTAL	SW 846 6010B	<0.01	MG/L	0.01	12/15/00	RDC
ARSENIC, TOTAL	SW 846 6010B	0.10	MG/L	0.01	12/15/00	RDC
BARIUM, TOTAL	SW 846 6010B	0.028	MG/L	0.005	12/15/00	RDC
CADMIUM, TOTAL	SW 846 6010B	0.02	MG/L	0.005	12/15/00	RDC
CHROMIUM, TOTAL	SW 846 6010B	4.49	MG/L	0.01	12/15/00	RDC
MERCURY, TOTAL	SW 846 7470	0.0002	MG/L	0.0002	12/15/00	XM
LEAD, TOTAL	SW 846 6010B	0.05	MG/L	0.01	12/15/00	RDC
SELENIUM, TOTAL	SW 846 6010B	0.31	MG/L	0.01	12/15/00	RDC
TOTAL CHLORINE/HALOG	SW 846 9020M	65.4	MG/KG	5.0	12/21/00	MS2
TPH GRO	8015G/OA1	2170	UG/L	500	12/14/00	KKL
BTEX	OA1/8021B			3.0		
BENZENE		45.1	UG/L	10	12/14/00	KKL
TOLUENE		79.7	UG/L	10	12/14/00	KKL
ETHYLBENZENE		9.16	UG/L	10	12/14/00	KKL
TOTAL XYLENES		74.7	UG/L	10	12/14/00	KKL
BFB (SURROGATE)		103	125	75		

ND=NONE DETECTED
PQL=PRACTICAL QUANTITAION LIMIT
SU=STANDARD UNITS
B=DETECTED IN METHOD BLANK

APPROVED BY:

TERRY KOESTER
LABORATORY DIRECTOR

QWAL LABORATORIES, INC.

2911 ROTARY TERRACE, P.O. BOX 562 / PITTSBURG, KS 66762/ (316) 232-1970

LABORATORY REPORT: REFERENCE #: 0012382-01

SENT: WILLIAMS
TO: 187 CR 4980
BLOOMFIELD NM 87413

DATE REPORTED: 12/19/00
DATE COLLECTED: 12/12/00
DATE RECEIVED: 12/14/00

ATTN: JIM STRUHS

SAMPLE ID: EL CEDRO-N-WW TANK
SAMPLE MATRIX: LIQUID

REACTIVITY EPA SW846 VOLUME 1C CHAPTER SEVEN SECTION 3

	YES	NO
1. DID SAMPLE EXPLODE AT ROOM TEMPERATURE?		X
2. DID SAMPLE REACT WITH DISTILLED WATER?		X
3. IS SAMPLE FORBIDDEN EXPLOSIVE WITH DOT?		X
4. DID SAMPLE REACT WITH STRONG BASE?		X
5. DID SAMPLE REACT WITH STRONG ACID?		X
6. CONCENTRATION OF REACTIVE SULFIDE (EPA 9030)	<1.0 MG/KG	
7. CONCENTRATION OF REACTIVE CYANIDE (EPA 9012)	<0.001 MG/KG	

APPROVED BY: _____
TERRY KOESTER
LABORATORY DIRECTOR

QWAL LABORATORIES, INC.

2911 ROTARY TERRACE, P.O. BOX 562 / PITTSBURG, KS 66762/ (316) 232-1970

LABORATORY REPORT: REFERENCE #: 0012382-02

SENT: WILLIAMS
TO: 187 CR 4980
BLOOMFIELD NM 87413

ATTN: JIM STRUHS

DATE REPORTED: 12/19/00
DATE COLLECTED: 12/12/00
DATE RECEIVED: 12/14/00

SAMPLE ID: EL CEDRO-S-WW TANK
SAMPLE MATRIX: LIQUID

REACTIVITY EPA SW846 VOLUME 1C CHAPTER SEVEN SECTION 3

	YES	NO
1. DID SAMPLE EXPLODE AT ROOM TEMPERATURE?		X
2. DID SAMPLE REACT WITH DISTILLED WATER?		X
3. IS SAMPLE FORBIDDEN EXPLOSIVE WITH DOT?		X
4. DID SAMPLE REACT WITH STRONG BASE?		X
5. DID SAMPLE REACT WITH STRONG ACID?		X
6. CONCENTRATION OF REACTIVE SULFIDE (EPA 9030)	<1.0 MG/KG	
7. CONCENTRATION OF REACTIVE CYANIDE (EPA 9012)	<0.001 MG/KG	

APPROVED BY: _____
TERRY KOESTER
LABORATORY DIRECTOR

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: **REFERENCE #:** 0012429

SENT TO: ***WILLIAMS GAS PIPELINE***
187 COUNTY ROAD # 4980
BLOOMFIELD, NM 87413
JIM STRUHS
PROJECT: TAA PITS/EL CEDRO WW

DATE REPORTED: 12/21/00
DATE COLLECTED: **12/14/00**
DATE RECEIVED: **12/16/00**

Reference Fraction:0012429-01A
Sample ID: EL CEDRO-N-WW TANK Sample Matrix: WATER
Sample Date Collected: **12/14/0012:47:00**

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
TOTAL CHLORINE/HALOG	SW 846 9020M	257.7	MG/KG	5.0	12/21/00	MS2

ND=NONE DETECTED
PQL=PRACTICAL QUANTITAION LIMIT
SU=STANDARD UNITS
B=DETECTED IN METHOD BLANK

APPROVED BY:

TERRY KOESTER
LABORATORY DIRECTOR

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒ Verbal Approval Received: Yes ☒ No ☐	4. Generator Halliburton 5. Originating Site YARD
2. Management Facility Destination KEY DISPOSAL	6. Transporter Key
3. Address of Facility Operator #345 CR3500 Aztec NM	8. State NM
7. Location of Material (Street Address or ULSTR) 409 E. MAIN ST. FARMINGTON NM	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

NEUTRALIZED HCL solution

DEC 2000
RECEIVED
OIL CONS. DIV.
DIST. 3

Estimated Volume ~ 500 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE _____ TITLE: MGR DATE: 12-21-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: _____ TITLE: Geologist DATE: 12/21/00

APPROVED BY: _____ TITLE: Environmental Geologist DATE: 1-11-01

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE
1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178 Fax (505)334-6170

GARY E. JOHNSON
GOVERNOR

JENNIFER A. SALISBURY
CABINET SECRETARY

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Halliburton Energy Services 4109 E Main Street Farmington, NM 87401	Key Energy Services 328 Road 3500 Aztec, NM 87410
3. Originating Site (name): Halliburton Energy Services 4109 E. Main Street Farmington, NM 87401 Attach list of originating sites as appropriate	**Location of the Waste (Street address &/or ULSTR):**
4. Source and Description of Waste PH adjusted Hydrochloric Acid Solution Resulting in Brine Solution. PH ≈ 5.2	

I, Kellie Horton (Print Name), representative for: Halliburton Energy Services do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

X **EXEMPT** oilfield waste

X **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste the following documentation is attached (check appropriate items):

- X MSDS Information
- ___ RCRA Hazardous Waste Analysis
- ___ Chain of Custody
- ___ Other (description):

This waste is in compliance with Regulated Levels of Naturally Occurring Radioactive Material **(NORM)** pursuant to 20 NMAC 3.1 subpart 1403.C and D.

Name (Original Signature): Kellie J Horton

Title: HSE Advisor

Date: 12/09/00

MATERIAL SAFETY DATA SHEET DATE: 12-09-00
HALLIBURTON ENERGY SERVICES REVISED DATE 04-07-99
DUNCAN, OKLAHOMA 73536

EMERGENCY TELEPHONE: 800/666-9260 OR 580/251-3359
EMERGENCY TELEPHONE: 800/666-9260 OR 580/251-3359

* * * * * * * * * * SECTION I - PRODUCT DESCRIPTION * * * * * * * * * * *

CHEMICAL CODE: WATER - BRINE SOLUTION - BULK PART NUMBER: NIS1312 0
PKG QTY: CARGO TANK APPLICATION: FLUSH
SERVICE USED: ALL

* * * * * * * * * * SECTION II - COMPONENT INFORMATION * * * * * * * * * *

COMPONENT+ + + + + + + + + +	PERCENT	TLV	PEL
SODIUM CHLORIDE	1-10 %	10 MG/M3	15 MG/M3

* * * * * * * * * * * SECTION III - PHYSICAL DATA * * * * * * * * * * * *

PROPERTY	MEASUREMENT
APPEARANCE	CLEAR LIQUID
ODOR	ODORLESS
SPECIFIC GRAVITY (H2O=1)	1.165
BULK DENSITY	9.70 LB/GAL
PH	5.2 FOR SAT SOL
SOLUBILITY IN WATER AT 20 DEG C. GMS/100ML H2O	MISCIBLE
BIODEGRADABILITY	N/D
PERCENT VOLATILES	N/D
EVAPORATION RATE(BUTYL ACETATE=1)	N/D
VAPOR DENSITY	N/D
VAPOR PRESSURE (MMHG)	N/D
BOILING POINT(760 MMHG)	N/D
POUR POINT	N/D
FREEZE POINT	N/D
SOLUBILITY IN SEAWATER	NOT EVALUATED
PARTITION COEF (OCTANOL IN WATER)	NOT EVALUATED

* * * * * * * * * SECTION IV - FIRE AND EXPLOSION DATA * * * * * * * * * *

NFPA(704) RATING:
HEALTH FLAMMABILITY REACTIVITY SPECIAL NONE
FLASH POINT NONE
AUTOIGNITION TEMPERATURE ND F / ND C
FLAMMABLE LIMITS (OZ. PER CU. FT.) LOWER ND UPPER ND

EXTINGUISHING MEDIA:
USE MEDIA APPROPRIATE FOR SURROUNDING MATERIALS.
SPECIAL FIRE FIGHTING PROCEDURES:
NOT APPLICABLE.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
NOT APPLICABLE.

* * * * * * * * * * * SECTION V - HEALTH HAZARD DATA * * * * * * * * * * *

CALIFORNIA PROPOSITION 65:
PRODUCT OR PRODUCT COMPONENTS ARE NOT REGULATED UNDER CALIF. PROPOSITION 65.

CARCINOGENIC DETERMINATION:

PRODUCT OR COMPONENTS ARE NOT LISTED AS A POTENTIAL CARCINOGEN
ACCORDING TO : "NTP, IARC, OSHA, OR, ACIGH".

PRODUCT TOXICITY DATA: IRR SKN-RBT 50 MG/24H MLD
IRR EYE-RBT 100 MG/34H SEV
TOX ORL-HMN TDLO:12357 MG/KG/23D-C
TOX ORL-RAT LD50: 3000 MG/KG
AQU TLM96:OVER 1000 PPM

PRODUCT TLV: NOT ESTABLISHED

---------- EFFECTS OF EXPOSURE ----------

ROUTES OF EXPOSURE:
EYE OR SKIN CONTACT, INHALATION.
EYE:
DUST OR MIST MAY CAUSE IRRITATION.
SKIN:
CONTACT MAY CAUSE SKIN IRRITATION.
INHALATION:
DUST OR MIST MAY CAUSE IRRITATION.
INGESTION:
NO DATA AVAILABLE
CHRONIC EFFECTS:
NO CHRONIC EFFECTS EXPECTED.
OTHER SYMPTOMS AFFECTED:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY CONDITIONS WORSENED BY EXPOSURE TO THIS PRODUCT.

---------- EMERGENCY AND FIRST AID PROCEDURES ----------

EYE:
IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, SEEK PROMPT MEDICAL ATTENTION.
SKIN:
PROMPTLY WASH SKIN WITH SOAP AND WATER. WASH CLOTHING BEFORE REUSE. IF IRRITAION DEVELOPS, SEEK PROMPT MEDICAL ATTENTION.
INHALATION:
REMOVE TO FRESH AIR. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION,
INGESTION:
DO NOT INDUCE VOMITING! IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES ARE INGESTED. HOWEVER, MEDICAL ADVICE SHOULD BE OBTAINED.

* * * * * * * * * * * * SECTION VI - REACTIVITY DATA * * * * * * * * * * * * *

STABILITY: STABLE
CONDITIONS TO AVOID:
NOT APPLICABLE.
INCOMPATIBILITY (MATERIALS TO AVOID):
NONE KNOWN.
HAZARDOUS DECOMPOSITION PRODUCTS:
NONE KNOWN.
HAZARD POLYMERIZATION: WON"T OCCUR
CONDITIONS TO AVOID:
NOT APPLICABLE.

* * * * * * * * * * SECTION VII - SPILL OR LEAK PROCEDURES * * * * * * * * * *

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
USE PROTECTIVE EQUIPMENT. ISOLATE SPILL AND STOP LEAK WHERE SAFE. CONTAIN AND ABSORB SPILL WITH AN INERT MATERIAL. SCOOP UP AND REMOVE.
WASTE DISPOSAL METHOD:
GET APPROVAL FROM LANDFILL OPERATOR AND TRANSPORT ABSORBED MATERIAL TO SANITARY LANDFILL.

* * * * * * * * * SECTION VIII - SPECIAL PROTECTION INFORMATION * * * * * * * * *

RESPIRATORY PROTECTION (USE NIOSH/MSHA APPROVED EQUIPMENT):
NOT NORMALLY NECESSARY.
VENTILATION:
USE ONLY WITH ADEQUATE VENTILATION. LOCAL EXHAUST VENTILATION IS NOT NORMALLY NEEDED.
PROTECTIVE GLOVES:
NORMAL WORK GLOVES.
EYE PROTECTION:
GOGGLES AND/OR FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT:
NORMAL WORK COVERALLS.

* * * * * * * * * * * * SECTION IX - SPECIAL PRECAUTIONS * * * * * * * * * * *

PRECAUTIONARY LABELING WATER - BRINE SOLUTION - BULK NIS.1312 0

CAUTION!
MAY CAUSE IRRITATION TO THE EYES, SKIN OR RESPIRATORY SYSTEM.
FOR PRECAUTIONARY STATEMENTS, REFER TO SECTIONS IV-VIII.
OTHER HANDLING AND STORAGE CONDITIONS:
STORE IN A COOL WELL VENTILATED LOCATION.
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID CONTACT WITH SKIN, EYES AND CLOTHING.
AVOID BREATHING VAPORS.
CONTAINER DISPOSITION:
EMPTY CONTAINER COMPLETELY. TRANSPORT CONTAINER WITH ALL CLOSURES IN PLACE. RETURN FOR REUSE OR DISPOSE IN A SANITARY LANDFILL BY FIRST OBTAINING LANDFILL OPERATOR'S AUTHORIZATION.

* * * * * * * * * * SECTION X - TRANSPORTATION INFORMATION * * * * * * * * * *

DOT SHIPPING DESCRIPTION:
NOT RESTRICTED

* * * * * * * * * * SECTION XI - ENVIRONMENTAL EVALUATION * * * * * * * * * *

EPA SUPERFUND(SARA) TITLE III - HAZARD CLASSIFICATION & ASSOCIATED INFORMATION
FIRE: N PRESSURE: N REACTIVE: N ACUTE (IMMEDIATE): Y
CHRONIC (DELAYED): N MIXTURE OR PURE MATERIAL: MIX

B. EPA - CERCLA/SUPERFUND, 40 CFR 302 (REPORTABLE SPILL QUANTITY)
N/A

C. EPA - SARA TITLE III, CFR 355 (EXTREMELY HAZARDOUS SUBSTANCES)
PRODUCT CONTAINS NO EXTREMELY HAZARDOUS COMPONENTS

D. EPA - SARA TITLE III, 40 CFR 372 (LIST OF TOXIC CHEMICALS)
CHEMICAL CONTAINS NO TOXIC INGREDIENTS

E. COMPONENTS LISTED ON FOLLOWING CHEMICAL INVENTORIES
TSCA YES CEPA NE EEC N/D ACOIN N/D NPR NE DRSM NE

H. EPA - RCRA (HAZARDOUS WASTE), 40 CFR 261

IF PRODUCT BECOMES A WASTE, IT DOES NOT MEET THE CRITERIA OF A HAZARDOUS WASTE

* *

BE RELIED UPON. HALLIBURTON HAS NOT ATTEMPTED TO CONCEAL IN ANY WAY THE DELETERIOUS ASPECTS OF THE PRODUCT LISTED HEREIN, BUT MAKES NO WARRANTY AS TO SUCH. FURTHER, AS HALLIBURTON CANNOT ANTICIPATE NOR CONTROL THE MANY SITUATIONS IN WHICH THE LISTED PRODUCT OR THIS INFORMATION MAY BE USED BY OUR CUSTOMER, THERE IS NO GUARANTEE THAT THE HEALTH AND SAFETY PRECAUTIONS SUGGESTED WILL BE PROPER UNDER ALL CONDITIONS. IT IS THE SOLE RESPONSIBILITY OF EACH USER OF THE LISTED PRODUCT TO DETERMINE AND COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE LAWS AND REGULATIONS REGARDING ITS USE OR DISPOSAL. THIS INFORMATION IS GIVEN SOLELY FOR THE PURPOSES OF HEALTH AND SAFETY TO PERSONS AND PROPERTY. ANY OTHER USE OF THIS INFORMATION IS EXPRESSLY PROHIBITED. HEALTH, SAFETY AND ENVIRONMENT DEPARTMENT, HALLIBURTON ENERGY SERVICES.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources RECEIVED
Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

DEC 18 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒ Verbal Approval Received: Yes ☐ No ☒	4. Generator WFS / Production Op. 5. Originating Site Compressor Sites
2. Management Facility Destination Key Energy Disposal	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 Aztec New Mexico	8. State NM
7. Location of Material (Street Address or ULSTR) See site list	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Wash water from compressors mixed with rain water

DEC 2000
RECEIVED
OIL CON. DIV
DIST. 3

Estimated Volume 1000 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE [signature] TITLE: Mgr DATE: 12-6-2000
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: Michael Talovich TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: [signature] TITLE: Geologist DATE: 12/11/2000

APPROVED BY: [signature] TITLE: Environmental Geologist DATE: 12/18/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
PRODUCTION OPERATORS, INC. 4000 Lomas Street Farmington, NM 87401	KEY ENERGY P.O. Box 900 Farmington, NM 87499

3. Originating Site (name): Location of the Waste (Street address &/or ULSTR):

29-6 #2, 29-6 #3, 29-6 #4, 29-7, 30-5, 30-6, 31-6,32-7, 32-8 #2, 32-8 #3, 32-9, Aztec, Carracas, Cedar Hill, Coyote Springs, Decker Junction, Hart Mt., Horse Canyon, Kernaghan, La Cosa, Manzanares, Middle Mesa, Moore, N-30, Navajo, PLA-9, Pipkin, Pump Mesa, Simms Mesa, Trunks A,B,C,F,L,M,T, CDPS ,Laguna Mesa, Martinez Draw Quintana Mesa, 31-6 WPX

Attach list of originating sites as appropriate

4. Source and Description of Waste

RAIN WATER & WASH WATER

I, Buster Gaston representative for:
(Print Name)

Production Operators, Inc. do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

___ EXEMPT oilfield waste

XX NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (check appropriate items):

___ MSDS Information
___ RCRA Hazardous Waste Analysis
___ Chain of Custody
___ Other (description):

Name (Original Signature): Buster Gaston

Title: Operations Coordinator

Date: 11-27-00

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

February 28, 2000

Mr. Bill Beevers
Williams field Service, Inc.
Manzanares District
Bloomfield, NM 87413

Phone: (505) 320-4642
Fax: (505) 632-4781

Project No.: 97050
Job No.: 705004

Dear Mr. Beevers,

Enclosed are the analytical results for one water sample collected from the location designated as "Horse Canyon". One water sample was collected by WFS designated personnel on 2/22/00, and received by the Envirotech laboratory on 2/22/00 for TCLP W/O Herbicides and Pesticides.

The sample was documented on Envirotech Chain of Custody No. 7699 and assigned Laboratory No. G875 (Waste Water) for tracking purposes. The sample was analyzed 2/24/00 - 2/28/00 using USEPA or equivalent methods.

Should you have any questions or require additional information, please do not hesitate to contact us at (505) 632-0615.

Respectfully submitted,
Envirotech, Inc.

Christine M. Walters

Christine M. Walters
Laboratory Coordinator / Environmental Scientist

enc.

CMW/cmw

C:/files/labreports/WFS.wpd

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Lab ID#:	G875-	Date Sampled:	02-22-00
Sample Matrix:	Water	Date Received:	02-22-00
Preservative:	Cool	Date Analyzed:	02-24-00
Condition:	Cool and Intact	Chain of Custody:	7699

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 6.26**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.

Comments: **Horse Canyon CDP.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-23-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	0.0176	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	0.145	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	98%
	Bromofluorobenzene	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-28-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	1.17	0.020	200
p,m-Cresol	1.11	0.040	200
2,4,6-Trichlorophenol	0.491	0.020	2.0
2,4,5-Trichlorophenol	0.065	0.020	400
Pentachlorophenol	0.454	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	98%
	2,4,6-Tribromophenol	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-28-00
Condition:	Cool and Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	ND	0.020	5.0
Hexachloroethane	ND	0.020	3.0
Nitrobenzene	0.047	0.020	2.0
Hexachlorobutadiene	ND	0.020	0.5
2,4-Dinitrotoluene	0.039	0.020	0.13
HexachloroBenzene	ND	0.020	0.13

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	97%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Analyzed:	02-24-00
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Analysis Needed:	TCLP metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Level (mg/L)
Arsenic	0.194	0.001	5.0
Barium	0.146	0.001	21
Cadmium	0.099	0.001	0.11
Chromium	0.072	0.001	0.60
Lead	0.087	0.001	0.75
Mercury	0.004	0.001	0.025
Selenium	ND	0.001	5.7
Silver	0.037	0.001	0.14

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, December 1996.

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Horse Canyon CDP.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-25-00
Laboratory Number:	02-23-TCV	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-23-00
Condition:	N/A	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	ND	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	ND	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	100%
	Bromofluorobenzene	100%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-23-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Detection Limits (mg/L)	Percent Difference
Vinyl Chloride	ND	ND	0.0001	0.0%
1,1-Dichloroethene	ND	ND	0.0001	0.0%
2-Butanone (MEK)	0.0176	0.0174	0.0001	1.1%
Chloroform	ND	ND	0.0001	0.0%
Carbon Tetrachloride	ND	ND	0.0001	0.0%
Benzene	0.145	0.146	0.0001	0.7%
1,2-Dichloroethane	ND	ND	0.0001	0.0%
Trichloroethene	ND	ND	0.0003	0.0%
Tetrachloroethene	ND	ND	0.0005	0.0%
Chlorobenzene	ND	ND	0.0003	0.0%
1,4-Dichlorobenzene	ND	ND	0.0002	0.0%

ND - Parameter not detected at the stated detection limit.

References:

Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-23-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Spike Added (mg/L)	Spiked Sample Result (mg/L)	Det. Limit (mg/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Vinyl Chloride	ND	0.050	0.0495	0.0001	99%	28-163
1,1-Dichloroethene	ND	0.050	0.0494	0.0001	99%	43-143
2-Butanone (MEK)	0.0176	0.050	0.0671	0.0001	99%	47-132
Chloroform	ND	0.050	0.0498	0.0001	100%	49-133
Carbon Tetrachloride	ND	0.050	0.0491	0.0001	98%	43-143
Benzene	0.145	0.050	0.195	0.0001	100%	39-150
1,2-Dichloroethane	ND	0.050	0.0494	0.0001	99%	51-147
Trichloroethene	ND	0.050	0.0494	0.0003	99%	35-146
Tetrachloroethene	ND	0.050	0.0494	0.0005	99%	26-162
Chlorobenzene	ND	0.050	0.0494	0.0003	99%	38-150
1,4-Dichlorobenzene	ND	0.050	0.0494	0.0002	99%	42-143

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure. SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap. SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846. USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report
Laboratory Blank

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-28-00
Laboratory Number:	02-28-TCA	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-28-00
Condition:	N/A	Analysis Requested:	TCLP

Analytical Results Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	ND	0.020	200
p,m-Cresol	ND	0.040	200
2,4,6-Trichlorophenol	ND	0.020	2.0
2,4,5-Trichlorophenol	ND	0.020	400
Pentachlorophenol	ND	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorophenol	98 %
	2,4,6-tribromophenol	99 %

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction. Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols. Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Detection Limit (mg/L)	Percent Difference
o-Cresol	1.17	1.16	0.020	1.0%
p,m-Cresol	1.11	1.09	0.040	2.0%
2,4,6-Trichlorophenol	0.491	0.486	0.020	1.0%
2,4,5-Trichlorophenol	0.065	0.064	0.020	1.1%
Pentachlorophenol	0.454	0.450	0.020	0.8%

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8040 Compounds	30.0%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G875.**

Analyst

Review

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ENVIROTECH LABS

FRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-28-00
Laboratory Number:	02-28-TBN	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	ND	0.020	5.0
Hexachloroethane	ND	0.020	3.0
Nitrobenzene	ND	0.020	2.0
Hexachlorobutadiene	ND	0.020	0.5
2,4-Dinitrotoluene	ND	0.020	0.13
HexachloroBenzene	ND	0.020	0.13

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	93%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QA/QC Matrix Duplicate Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Percent Difference	Det. Limit (mg/L)
Pyridine	ND	ND	0.0%	0.020
Hexachloroethane	ND	ND	0.0%	0.020
Nitrobenzene	0.047	0.047	0.0%	0.020
Hexachlorobutadiene	ND	ND	0.0%	0.020
2,4-Dinitrotoluene	0.039	0.038	3.0%	0.020
HexachloroBenzene	ND	ND	0.0%	0.020

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Maximum Difference
	8090 Compounds	30%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	02-24-TCM QA/QC	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP Metals	Date Analyzed:	02-24-00
Condition:	N/A	Date Extracted:	N/A

Blank & Duplicate Conc. (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.001	0.194	0.195	0.5%	0% - 30%
Barium	ND	ND	0.001	0.146	0.149	2.1%	0% - 30%
Cadmium	ND	ND	0.001	0.099	0.100	1.0%	0% - 30%
Chromium	ND	ND	0.001	0.072	0.073	1.4%	0% - 30%
Lead	ND	ND	0.001	0.087	0.089	2.3%	0% - 30%
Mercury	ND	ND	0.001	0.004	0.004	0.0%	0% - 30%
Selenium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Silver	ND	ND	0.001	0.037	0.037	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	0.500	0.194	0.693	99.9%	80% - 120%
Barium	0.500	0.146	0.65	100.3%	80% - 120%
Cadmium	0.500	0.099	0.598	99.8%	80% - 120%
Chromium	0.500	0.072	0.572	100.0%	80% - 120%
Lead	0.500	0.087	0.588	100.2%	80% - 120%
Mercury	0.050	0.004	0.053	98.1%	80% - 120%
Selenium	0.500	ND	0.498	99.6%	80% - 120%
Silver	0.500	0.037	0.536	99.8%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA; Dec. 1996

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission, SW-846, USEPA, December 1996.

Comments: **QA/QC for sample G875.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7699

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
WFS	Horse Canyon CDP	
Sampler: Bill Beevers	**Client No.** 705004	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TCLP w/o H2S						Remarks
Glass Waste Water	2/22	14:00	G875	Liquid		✓						TCLP
Glass " "	2/22	14:00		Liquid								"
VOA - " "	"	"		"								"
VOA " "	"	"		"								"
Plastic Waste Water	"	"		"								"

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Bill Beevers	2/22/00	15:55	Debora L. Boogard	2/20/00	15:55
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

RECEIVED
NOV 29 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator Williams field Seevices
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Milagro Plant
2. Management Facility Destination Key Disposal	6. Transporter Key
3. Address of Facility Operator #345 Aztec NM CR 3500	8. State NM
7. Location of Material (Street Address or ULSTR) #192 CR 4900 Bloomfield, NM 87413	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

WASTE WATER MIXED WITH VARIOUS CHEMICALS FROM NATURAL GAS PROCESSING

X NEW ANALYSIS

NOV 2000

Estimated Volume 5000 bbls + cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE _____ TITLE: MGR DATE: 11-28-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: _____ TITLE: Geologist DATE: 11/28/00

APPROVED BY: _____ TITLE: Environmental Geologist DATE: 11/29/00

District I - (505) 393-6161
1625 N. French Dr
Hobbs, NM 88240
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131
2040 S. Pacheco
Santa Fe, NM 87505

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Form C-143
3/15/00

Submit to OCD Permitted Surface Waste Management Facility

GENERATOR CERTIFICATE OF WASTE STATUS

1. Waste Generator Name and Address:

Williams Field Services
Milagro Plant
#192 County Road 4900
Bloomfield, NM 87413

2. Permit Number (if waste generated at an OCD permitted facility)

3. Description of Waste and Generating Process:

Waste aqueous liquids comprised of produced water and other impurities from natural gas along with amine and other liquids from natural gas processing.

4. Location of Waste (Street address &/or ULSTR):

Milagro Plant
#192 CR 4900
Bloomfield, NM 87413

5. Destination (Surface Waste Management Facility):

Key Disposal or other NMOCD permitted facility

6. Transporter:

Various SJA service providers

7. Estimated Volume 500 ~~cy~~bbls per month

For **NON-EXEMPT** waste only, the following documentation is attached (check appropriate items):

____ MSDS Information

_X_ RCRA Hazardous Waste Analysis (With Chain of Custody).

_X_ Other (Description) Process knowledge - process generating this waste has not changed since last waste characterization.

Generator certifies that, according to the Resource Conservation and Recovery Act (RCRA) and the Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (check appropriate classification)

____ **EXEMPT** oilfield waste.

_X_ **NON-EXEMPT** oilfield waste that is non-hazardous pursuant to 40 CFR Part 261. (Attach appropriate documentation)

In addition, Generator certifies that nothing has been added to this exempt or non-exempt non-hazardous waste and that this waste does not contain Naturally Occurring Radioactive Material (NORM) regulated pursuant to 20 NMAC 3.1 Subpart 1403.

Generator Signature: Mark Harvey ON BEHALF OF WILLIAMS Date: 11-27-00

Print Name: Mark Harvey for Williams

QWAL LABORATORIES, INC.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: **REFERENCE #:** 0011535

SENT TO: WILLIAMS FIELD SERVICE
295 CHIPETA WAY
SALT LAKE CITY, UTAH 84158
MARK HARVEY

DATE REPORTED: 11/22/00
DATE COLLECTED: 11/17/00
DATE RECEIVED: 11/21/00
P.O. #:

PROJECT:MILAGRO PONDS

Sample ID: MIL-POND-C-01 **Sample Matrix:** WATER
Collection Date: 11/17/00 08:05:00

TEST	METHOD-CAS #	RESULT	UNITS	PQL	ANALYZED	EXTRACTED
METAL PREPARATION	EPA 3010	IL001121C			11/21/00JH	
SILVER, TOTAL	EPA 200.7	<0.01	MG/L	0.01	11/22/00RDC	
ARSENIC, TOTAL	EPA 200.7	0.12	MG/L	0.01	11/22/00RDC	
BARIUM, TOTAL	EPA 200.7	0.12	MG/L	0.005	11/22/00RDC	
CADMIUM, TOTAL	EPA 200.7	0.019	MG/L	0.005	11/22/00RDC	
CHROMIUM, TOTAL	EPA 200.7	10.0	MG/L	0.01	11/22/00RDC	
MERCURY, TOTAL	EPA 245.1	<0.0002	MG/L	0.0002	11/22/00XM	
LEAD, TOTAL	EPA 200.7	0.10	MG/L	0.01	11/22/00RDC	
SELENIUM, TOTAL	EPA 200.7	0.29	MG/L	0.01	11/22/00RDC	
REACTIVE CYANIDE	SW846 SEC7.3	<0.001	MG/L	0.001	11/22/00MS2	
REACTIVE SULFIDE	SEC.7.3.4.1	<0.05	MG/L	0.05	11/22/00MS2	
TOTAL ORGANIC HALOGE	SW 846 9020	362.4	UG/L	5.0	11/22/00MB	
TPH GRO	8015G/OA1	107	UG/L	50.0	11/21/00MB	
BTEX	OA1/8021B			3.0		
BENZENE	71-43-2	ND	UG/L	1.0	11/21/00MB	
TOLUENE	108-88-3	2.81	UG/L	1.0	11/21/00MB	
ETHYLBENZENE	100-41-4	ND	UG/L	1.0	11/21/00MB	
TOTAL XYLENES	1330-20-7	3.16	UG/L	1.0	11/21/00MB	
BFB (SURROGATE)	-	114	125	75		

ND=NONE DETECTED
PQL=PRACTICAL QUANTITATION LIMIT
SU=STANDARD UNITS
*BACKGROUND CONTAMINATION
SUR=SURROGATE
Q=OUTSIDE LIMITS
B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER
LABORATORY DIRECTOR

Q.W.A.L. LABORATORIES, INC.

Established 1976
2911 Rotary Terrace • Pittsburg, Kansas 66762
TO ORDER: FAX 1-316-232-7730 OR PHONE 1-316-232-1970

0011535

(1) Company Name: WILLIAMS FIELD SERVICES
Attention: MARK HARVEY
(4) Phone #: 505-632-4607
Address:
City, State, Zip Code
(4) Fax #:
(2) Project Name or Number: MILAGRO PONDS
(5) Purchase Order #:
(3) Sampling Personnel Signature(s): M. Harvey
Sampling Personnel (print name)

(13) TURNAROUND TIME REQUESTED (Additional Charges May Apply)
☐ Standard ☐ 72 Hours ☐ 48 Hours ☒ 24 Hours ☐ SameDay
* Note - Please contact lab for availability of priority service.

(12) ANALYSIS REQUEST
(Write Tests Here)

(6) Sample I.D.	Date (7)	Time (7)	(8) Comp.	(8) Grab	(9) # of Containers	(10) Method Preserved: H2SO4	HNO3	NAOH	HCL	Ice	None	(11) Sample Matrix: Water	Soil	Air	Sludge	Other	RCRA D-LIST METALS	BTEX / TPH 8015	TOX	REACT. SULFIDE / CYANIDE	REMARKS (If special detection limits are required please note below.)
MIL-POND-C-01	11-17	8:05	X		4					X		X									

(14) Relinquished By: M. Harvey — Date: 11-20 — Time: 2:30
Received By: Dale Robinson — Date: 11/21/00 — Time: 10:15
Relinquished By: — Date: — Time:
Received By: — Date: — Time:
Relinquished By: — Date: — Time:
Received By: — Date: — Time:

(15) Send Report to:
Company: WILLIAMS FIELD SERVICES
Attn:
Address:
City/State:
Phone:
Fax:

(16) Send Invoice to:
(if different form report address)
Company:
Attn:
Address:
City/State:
Phone:
Fax:

*FAILURE TO COMPLETE THIS FORM MAY DELAY LABORATORY RESULTS.

003 QWAL LAB 11/22/00 15:51 FAX 13162327730

KEY ENERGY SERVICES

FOUR CORNERS DIVISION
PIPEYARD/DISPOSAL
P O BOX 900
5651 US HWY 64
FARMINGTON, NEW MEXCIO 87499
OFFICE (505) 334-6416 FAX (505) 334-5413

DATE: 11-29-2000 TIME: 10:50 Am

TO: COMPANY NMOCD

PERSON Marlyne Kieling

PHONE FAX (505) 827-8177

FROM: M. TALOVICH Key Disposal

MESSAGE:

Marlyne,

Please include this info with the WFS Milagro Plant Analysis, previous documentation was done with incorrect method. If this doesn't fax good I can send you a little better copy.

Thank you

Mike

TOTAL NUMBER OF PAGES 4

(INCLUDING COVER SHEET)

Fax

To:	Mike Talovich	From:	Mark J. Bareta
Fax:	334-5413	Pages:	3
Phone:	334-6186	Date:	November 29, 2000
Re:	Milagro Analysis	CC:	Denny Foust / OCD,/ 334-6170

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

- Comments:

Attached is an amended analytical report and cover letter from QWAL labs for the recent Milagro pond analysis. The report was amended by QWAL to correct the analytical method reported on the analytical sheet. Per the cover letter and a telephone conversation with Matthew Sheffield at QWAL, the report now correctly references the method used, and that total metals were analyzed. If you have any questions, please don't hesitate to call me at (505) 632-4634.

Q.W.A.L. LABORATORIES, INC.

Certified Laboratory
Domestic • Industrial • Municipal
established 1976

Nov 29, 2000

Mark Bareta
Williams Field Services
187 CR4980
Bloomfield, NM 87413

Dear Mark,

Thank you for you call today. As per you request I investigated the Chromium results for Sample ID: MIL-POND-C-01. All of the quality control was acceptable and the sample was analyzed at multiple dilutions with the same result. This sample was analyzed for total metals. They were analyzed utilizing the SW846 methods. The mercury was analyzed by SW846 7470, and the other metals were analyzed by SW846 6010. The samples were inadvertently reported referencing the incorrect methods. The report has been amended and is enclosed. Thank you for your business. If I can be of any further assitance or you have any questions, please call me at (316) 232-1970.

Sincerely,

Matthew Sheffield
QWAL Laboratories, Inc.

2911 Rotary Terrace • P.O. Box 562 • Pittsburg, Kansas 66762
PHONE (316) 232-1970 • FAX (316) 232-7730

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT: REFERENCE #: 0011535

SENT TO: WILLIAMS FIELD SERVICE
295 CHIPETA WAY
SALT LAKE CITY, UTAH 84158
MARK HARVEY
PROJECT:MILAGRO PONDS

DATE REPORTED: 11/29/00
DATE COLLECTED: 11/17/00
DATE RECEIVED: 11/21/00
P.O. #:

Sample ID: MIL-POND-C-01 Sample Matrix: WATER
Collection Date: 11/17/00 09:05:00

TEST	METHOD-CAS #	RESULT	UNITS	PQL	ANALYZED	EXTRACTED
METAL PREPARATION	EPA 3010	IL0011210			11/21/00JH	
SILVER, TOTAL	SW 846 6010B	<0.01	MG/L	0.01	11/22/00RDC	
ARSENIC, TOTAL	SW 846 6010B	0.12	MG/L	0.05	11/22/00RDC	
BARIUM, TOTAL	SW 846 6010B	0.12	MG/L	0.005	11/22/00RDC	
CADMIUM, TOTAL	SW 846 6010B	0.019	MG/L	0.005	11/22/00RDC	
CHROMIUM, TOTAL	SW 846 6010B	10.0	MG/L	0.01	11/22/00RDC	
MERCURY, TOTAL	SW 846 7470	<0.0002	MG/L	0.0002	11/22/00XM	
LEAD, TOTAL	SW 846 6010B	0.10	MG/L	0.01	11/22/00RDC	
SELENIUM, TOTAL	SW 846 6010B	0.29	MG/L	0.05	11/22/00RDC	
REACTIVE CYANIDE	SW846 SEC7.3	<0.001	MG/L	0.001	11/22/00MS2	
REACTIVE SULFIDE	SEC.7.3.4.1	<0.05	MG/L	0.05	11/22/00MS2	
HALOGENS, TOTAL ORGA	SW 846 9020	362.4	UG/L	5.0	11/22/00MB	
TPH GRO	8015G/OA1	107	UG/L	50.0	11/21/00MB	
BTEX	OA1/8021B			3.0		
BENZENE	71-43-2	ND	UG/L	1.0	11/21/00MB	
TOLUENE	108-88-3	2.81	UG/L	1.0	11/21/00MB	
ETHYLBENZENE	100-41-4	ND	UG/L	1.0	11/21/00MB	
TOTAL XYLENES	1330-20-7	3.16	UG/L	1.0	11/21/00MB	
BFB (SURROGATE)		114	125	75		

ND=NONE DETECTED
PQL=PRACTICAL QUANTITATION LIMIT
SU=STANDARD UNITS
*BACKGROUND CONTAMINATION
SUR=SURROGATE
Q=OUTSIDE LIMITS
B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER
TERRY KOESTER
LABORATORY DIRECTOR

REPORT AMENDED TO REFERENCE APPROPRIATE METHODS FOR METALS ANALYSIS. MS2

KEY ENERGY SERVICES

FOUR CORNERS DIVISION
PIPEYARD/DISPOSAL

P O BOX 900
5651 US HWY 64
FARMINGTON, NEW MEXCIO 87499
OFFICE (505) 334-6416 FAX (505) 334-5413

DATE: 11-28-00 TIME: 11 AM

TO: COMPANY NMOCD

PERSON MARYNE Kieling

PHONE 827-7153 FAX 505-827-8177

FROM: M. TALOVICH

MESSAGE: WFS MILAGRO Plant Chromium STUFF.

TOTAL NUMBER OF PAGES 4

(INCLUDING COVER SHEET)

WILLIAMS FIELD SERVICES
ONE OF THE WILLIAMS COMPANIES, INC.

P.O. Box 58900 Salt Lake City, Utah 84158-0900

November 26, 1996

Mr. Patricio Sanchez
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Disposal of Wastewater From Milagro Plant GW-80

Dear Mr. Sanchez:

Enclosed, please find the representative analysis of wastewater generated at the Milagro Plant in Bloomfield, New Mexico. Based on process knowledge and the attached analysis, Williams Field Services maintains that the wastewater is non-hazardous. The chromium concentrations detected in the wastewater are a result of contact with the amine solution and stainless steel piping and vessels. The plant does not use and has never used chromium-containing chemicals in the process. The waste is generated from an industrial process which uses trivalent chromium exclusively and the process does not generate hexavalent chromium. Therefore, the waste is considered non-hazardous according to 40CFR Part 261.4 (b) (6) (i) (B).

Williams Field Services requests approval to dispose of this wastewater at Sunco's Class I Disposal Well. If you have any questions or need additional information, please do not hesitate to contact me at (801) 584-6543.

Sincerely,

Leigh E. Gooding
Sr. Environmental Specialist

cc: Mr. Denny Foust
Hal Stone, Sunco

WILLIAMS FIELD SERVICES

Date: 11/26/96	# of pages ▶ 1
To: Hal Stone	From Leigh Gooding
Co.	Co. Williams Field Services
Fax (505) 327-4662	Phone #
	Fax #

295 Chipeta Way Salt Lake City, Utah 84108
(801) 584-7033

NOV-27-96 WED 09:28 AM OIL CONSERVATION DIV FAX NO. 5058278177 P. 01/01

DELIVER TO: MR. HAL STONE

FROM: OCD

STATE OF NEW MEXICO OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 7:45 AM	Date Nov. 27, 1996
Originating Party		Other Parties
Jim Seubert, NMED HRMB		Pat Sanchez, NMOCD

Subject W/FS - Milagro Waste water - GW-60 Regulatory Determination "Letter / Analysis from WFS dated Nov. 26, 1996"

Discussion

Mr. Seubert agreed with the determination as sited by Ms. Gedding in the November 26, 1996 letter regarding - "Disposal of Wastewater From Milagro Plant GW-60."

Mr. Seubert gave me a verbal approval, with a written correspondence to follow.

Conclusions or Agreements

(1) The wastewater per NMED, HRMB (Mr. Jim Seubert) is NON-HAZARDOUS in terms of RCRA SUBTITLE C Regulations.

Distribution File, Hal Stone, Leigh Gedding

Signed Patricia A. Sanchez

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

November 27, 1996

Mr. Patricio Sanchez
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Disposal of wastewater from the Milagro Plant GW-60

Dear Mr. Sanchez:

This is to follow up on our telephone conversation re: your request for a determination of whether or not wastewaters from the above referenced facility are hazardous waste. NMED has determined that even though the wastewater does contain hazardous constituents as documented in the waste analysis report from Inter-Mountain Laboratories, Inc. dated 08-01-96, this waste is considered non-hazardous under 40 CFR §261.4(b)(6)(i).

Please feel free to contact me should need additional information.

Sincerely,

James E. Seubert

James E. Seubert, Acting Program Manager
Hazardous and Radioactive Materials Bureau

xc: Leigh E. Gooding, Williams Field Services

<XC: DENNY FOUST>

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
OCT 05 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator El Paso field Service
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Chaco Plant
2. Management Facility Destination Key Disposal	6. Transporter Key
3. Address of Facility Operator #345 Aztec NM CR 3500	8. State NM
7. Location of Material (Street Address or ULSTR) Sec 16, T26N, R12W San Juan Co. NM	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Contact wastewater from Plant

OCT 2000
RECEIVED
OIL CON. DIV.
DIST. 3

NEW Analysis ✓

Estimated Volume AT LEAST 2500bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: [signature] TITLE: MOC DATE: 10-3-2000
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TAFOVICH TELEPHONE NO. 505-334-6178

(This space for State Use)

APPROVED BY: Denny Foust TITLE: Geologist DATE: 10/3/2000

APPROVED BY: Martyne J. Kieling TITLE: Environmental Geologist DATE: 10/5/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
El Paso Field Services 614 Reilly Avenue Farmington NM 87401	KEY ENERGY DISPOSAL
3. Originating Site (name): Chaco Plant Attach list of originating sites as appropriate	Location of the Waste (Street address &/or ULSTR): Sec 16, T 26N, R12W San Juan Co. NM
4. Source and Description of Waste Contact wastewater from Plant	

I, Michael D. Hansen representative for:

El Paso Field Services Chaco Plant do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1998, regulatory determination, the above-described waste is: (Check appropriate classification)

____ **EXEMPT** oilfield waste

X **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

____ MSDS Information

____ Other (description):

X RCRA Hazardous Waste Analysis

____ Chain of Custody

Name (Original Signature): Michael D. Hansen

Title: Senior Operations Specialist (Compliance)

Date: 10-3-00

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	EPFS	Project #:	705729
Sample ID:	2000 bbl Waste Water	Date Reported:	08-10-00
Lab ID#:	H881	Date Sampled:	08-09-00
Sample Matrix:	Water	Date Received:	08-09-00
Preservative:	Cool	Date Analyzed:	08-10-00
Condition:	Cool and Intact	Chain of Custody:	8108

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 4.58**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.

Comments: **Chaco Plant.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS

Client:	EPFS	Project #:	705729
Sample ID:	2000 bbl Waste Water	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	08-09-00
Chain of Custody:	8108	Date Received:	08-09-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-11-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	**ND**	**0.0001**	**0.2**
1,1-Dichloroethene	**ND**	**0.0001**	**0.7**
2-Butanone (MEK)	**0.0444**	**0.0001**	**200**
Chloroform	**ND**	**0.0001**	**6.0**
Carbon Tetrachloride	**ND**	**0.0001**	**0.5**
Benzene	**0.165**	**0.0001**	**0.5**
1,2-Dichloroethane	**ND**	**0.0001**	**0.5**
Trichloroethene	**ND**	**0.0003**	**0.5**
Tetrachloroethene	**ND**	**0.0005**	**0.7**
Chlorobenzene	**ND**	**0.0003**	**100**
1,4-Dichlorobenzene	**ND**	**0.0002**	**7.5**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	**98%**
	Bromofluorobenzene	**99%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Chaco Plant.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS

Client:	EPFS	Project #:	705729
Sample ID:	2000 bbl Waste Water	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	08-09-00
Chain of Custody:	8108	Date Received:	08-09-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-11-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	**ND**	**0.020**	**200**
p,m-Cresol	**ND**	**0.040**	**200**
2,4,6-Trichlorophenol	**ND**	**0.020**	**2.0**
2,4,5-Trichlorophenol	**ND**	**0.020**	**400**
Pentachlorophenol	**ND**	**0.020**	**100**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	**98%**
	2,4,6-Tribromophenol	**99%**

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Chaco Plant.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics

Client:	EPFS	Project #:	705729
Sample ID:	2000 bbl Waste Water	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	08-09-00
Chain of Custody:	8108	Date Received:	08-09-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	08-11-00
Condition:	Cool and Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**97%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Chaco Plant.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC
LEACHING PROCEDURE
TRACE METAL ANALYSIS

Client:	EPFS	Project #:	705729
Sample ID:	2000 bbl Waste Water	Date Reported:	08-10-00
Laboratory Number:	H881	Date Sampled:	08-09-00
Chain of Custody:	8108	Date Received:	08-09-00
Sample Matrix:	Water	Date Analyzed:	08-10-00
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Analysis Needed:	TCLP metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Level (mg/L)
Arsenic	**0.130**	**0.001**	**5.0**
Barium	**ND**	**0.001**	**100**
Cadmium	**0.118**	**0.001**	**1.0**
Chromium	**0.167**	**0.001**	**5.0**
Lead	**0.190**	**0.001**	**5.0**
Mercury	**ND**	**0.001**	**0.2**
Selenium	**0.021**	**0.001**	**1.0**
Silver	**0.007**	**0.001**	**5.0**

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, December 1996.

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission SW-846, USEPA. December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Chaco Plant.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020 AROMATIC / HALOGENATED VOLATILE ORGANICS Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	08-11-00
Laboratory Number:	08-11-TCV	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-11-00
Condition:	N/A	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	ND	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	ND	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	100%
	Bromofluorobenzene	100%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	08-11-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Detection Limits (mg/L)	Percent Difference
Vinyl Chloride	ND	ND	0.0001	0.0%
1,1-Dichloroethene	ND	ND	0.0001	0.0%
2-Butanone (MEK)	0.0444	0.0444	0.0001	0.0%
Chloroform	ND	ND	0.0001	0.0%
Carbon Tetrachloride	ND	ND	0.0001	0.0%
Benzene	0.165	0.165	0.0001	0.0%
1,2-Dichloroethane	ND	ND	0.0001	0.0%
Trichloroethene	ND	ND	0.0003	0.0%
Tetrachloroethene	ND	ND	0.0005	0.0%
Chlorobenzene	ND	ND	0.0003	0.0%
1,4-Dichlorobenzene	ND	ND	0.0002	0.0%

ND - Parameter not detected at the stated detection limit.

References:
Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	08-11-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Spike Added (mg/L)	Spiked Sample Result (mg/L)	Det. Limit (mg/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Vinyl Chloride	ND	0.050	0.0495	0.0001	99%	28-163
1,1-Dichloroethene	ND	0.050	0.0494	0.0001	99%	43-143
2-Butanone (MEK)	0.0444	0.050	0.0939	0.0001	99%	47-132
Chloroform	ND	0.050	0.0498	0.0001	100%	49-133
Carbon Tetrachloride	ND	0.050	0.0491	0.0001	98%	43-143
Benzene	0.165	0.050	0.215	0.0001	100%	39-150
1,2-Dichloroethane	ND	0.050	0.0494	0.0001	99%	51-147
Trichloroethene	ND	0.050	0.0494	0.0003	99%	35-146
Tetrachloroethene	ND	0.050	0.0494	0.0005	99%	26-162
Chlorobenzene	ND	0.050	0.0494	0.0003	99%	38-150
1,4-Dichlorobenzene	ND	0.050	0.0494	0.0002	99%	42-143

ND - Parameter not detected at the stated detection limit.

References:
Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report
Laboratory Blank

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	08-11-00
Laboratory Number:	08-11-TCA	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	08-11-00
Condition:	N/A	Analysis Requested:	TCLP

Analytical Results Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	**ND**	**0.020**	**200**
p,m-Cresol	**ND**	**0.040**	**200**
2,4,6-Trichlorophenol	**ND**	**0.020**	**2.0**
2,4,5-Trichlorophenol	**ND**	**0.020**	**400**
Pentachlorophenol	**ND**	**0.020**	**100**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorophenol	**98 %**
	2,4,6-tribromophenol	**99 %**

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	08-11-00
Laboratory Number:	08-11-TCA-MB	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Date Analyzed:	08-11-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	**ND**	**0.020**	**200**
p,m-Cresol	**ND**	**0.040**	**200**
2,4,6-Trichlorophenol	**ND**	**0.020**	**2.0**
2,4,5-Trichlorophenol	**ND**	**0.020**	**400**
Pentachlorophenol	**ND**	**0.020**	**100**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	**98%**
	2,4,6-Tribromophenol	**99%**

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Date Analyzed:	08-11-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Detection Limit (mg/L)	Percent Difference
o-Cresol	**ND**	**ND**	**0.020**	**0.0%**
p,m-Cresol	**ND**	**ND**	**0.040**	**0.0%**
2,4,6-Trichlorophenol	**ND**	**ND**	**0.020**	**0.0%**
2,4,5-Trichlorophenol	**ND**	**ND**	**0.020**	**0.0%**
Pentachlorophenol	**ND**	**ND**	**0.020**	**0.0%**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8040 Compounds	**30.0%**

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	08-11-00
Laboratory Number:	08-11-TBN	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	08-11-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**100%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	08-11-00
Laboratory Number:	08-11-TBN-MB	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool and Intact	Date Analyzed:	08-11-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**100%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QA/QC Matrix Duplicate Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	08-11-00
Laboratory Number:	H881	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	08-11-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Percent Difference	Det. Limit (mg/L)
Pyridine	**ND**	**ND**	**0.0%**	**0.020**
Hexachloroethane	**ND**	**ND**	**0.0%**	**0.020**
Nitrobenzene	**ND**	**ND**	**0.0%**	**0.020**
Hexachlorobutadiene	**ND**	**ND**	**0.0%**	**0.020**
2,4-Dinitrotoluene	**ND**	**ND**	**0.0%**	**0.020**
HexachloroBenzene	**ND**	**ND**	**0.0%**	**0.020**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Maximum Difference
	8090 Compounds	**30%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample H881.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	08-10-TCM QA/QC	Date Reported:	08-10-00
Laboratory Number:	H881	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP Metals	Date Analyzed:	08-10-00
Condition:	N/A	Date Extracted:	N/A

Blank & Duplicate Conc. (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.001	0.130	0.131	0.8%	0% - 30%
Barium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Cadmium	ND	ND	0.001	0.118	0.117	0.8%	0% - 30%
Chromium	ND	ND	0.001	0.167	0.169	1.2%	0% - 30%
Lead	ND	ND	0.001	0.190	0.193	1.6%	0% - 30%
Mercury	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Selenium	ND	ND	0.001	0.021	0.021	0.0%	0% - 30%
Silver	ND	ND	0.001	0.007	0.007	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	0.500	0.130	0.629	99.8%	80% - 120%
Barium	0.500	ND	0.499	99.8%	80% - 120%
Cadmium	0.500	0.118	0.616	99.7%	80% - 120%
Chromium	0.500	0.167	0.668	100.1%	80% - 120%
Lead	0.500	0.190	0.691	100.1%	80% - 120%
Mercury	0.050	ND	0.049	98.0%	80% - 120%
Selenium	0.500	0.021	0.520	99.8%	80% - 120%
Silver	0.500	0.007	0.506	99.8%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, Dec. 1996

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission, SW-846, USEPA, December 1996.

Comments: **QA/QC for sample H881.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

08108

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
EPFS	Chaco Plant	

Sampler:	Client No.
Harland M. Brown	97057-29

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TCLP w/o H&P						Remarks
2000 bbl Wastewater	8-9-00	11:00	14881	Water	5	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Harland M. Brown	8-9-00	11:50	[signature]	8-9-00	11:50
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
SEP 21 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator OIL + GAS EQUIPMENT
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site YARD SUMP
2. Management Facility Destination Key DISPOSAL	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 AZTEC NM	8. State NM
7. Location of Material (Street Address or ULSTR) 4910 E. MAIN FARMINGTON NM 87402	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

CLEANING SUMP FOR PRODUCTION EQUIPMENT WASTE WATER

City water mixed with CLEANING AGENTS (see MSDS)

LAST Filed 12-8-99

Estimated Volume < 500 GAL cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: Michael Talovich TITLE: MGR DATE: 9-19-2000
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: Denny Foust TITLE: Geologist DATE: 9/20/00

APPROVED BY: Martyne J. Kieling TITLE: Environmental Geologist DATE: 9-21-00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Oil + Gas Equip 4910 E. Main Farmington, N. Mex 87402	KEY ENERGY DISPOSAL
3. Originating Site (name):	**Location of the Waste (Street address &/or ULSTR):**
Same Attach list of originating sites as appropriate	Same.
4. Source and Description of Waste	
Hot bath for cleaning glycol pumps + values used in oilfield equipment.	

I, Philip Cheney representative for:

Oil + Gas Equipment Corp. do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1998, regulatory determination, the above-described waste is: (Check appropriate classification)

_____ **EXEMPT** oilfield waste

__X__ **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

__✓__ MSDS Information

_____ RCRA Hazardous Waste Analysis

_____ Chain of Custody

__X__ Other (description): P. H. = 8

Name (Original Signature) P. Philip Cheney

Title: Pump Shop

Date: Sept 19, 2000

CLEAN ACROSS AMERICA AND THROUGHOUT THE WORLD™

ZEP MANUFACTURING COMPANY
P.O. BOX 2015
ATLANTA, GEORGIA 30301

MATERIAL SAFETY DATA SHEET
AND SAFE HANDLING AND DISPOSAL INFORMATION

ISSUE DATE: 02/01/89
SUPERSEDES: 12/30/88 Date printed: 11/17/99

ZEP VAT NEUTRALIZER
Product No: 1465 Vat Neutralizer

SECTION I - EMERGENCY CONTACTS

TELEPHONE:
(404) 352-1680 *BETWEEN 8:00 AM - 5:00 PM (EST)*
MEDICAL EMERGENCY:
(770) 439-4200 *NON OFFICE HOURS, WEEKENDS*
(770) 432-2873 *AND HOLIDAYS, PLEASE CALL YOUR*
(770) 455-8160 **LOCAL POISON CONTROL**
(770) 552-8836
(770) 424-2048
(770) 424-4789
TRANSPORTATION EMERGENCY:
(770) 922-0923
CHEMTREC:
(800) 424-9300 TOLL FREE - ALL CALLS RECORDED
DISTRICT OF COLUMBIA:
(202) 483-7616 ALL CALLS RECORDED

SECTION II - HAZARDOUS INGREDIENTS

DESIGNATIONS	(PPM)	EFFECTS (SEE NOTICE)	% IN PROD.
@** SULFURIC ACID ** oil of vitriol; CAS# 7664-93-9; RTECS# WS5600000; OSHA PEL-1 mg/m3 (for mists only).	0.25	TOX COR	60-70

@ IDENTIFIES CHEMICALS LISTED UNDER SARA-SECTION 313 FOR RELEASE REPORTING.

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects would not be expected under recommended conditions of use (diluted) so long as prescribed safety precautions are practiced.

ACUTE EFFECTS OF OVEREXPOSURE:
Corrosive to skin and eyes on contact. Eye contact can produce corneal damage or blindness. Skin contact can produce inflammation, reddening, and blistering. Inhalation of spray mist or vapors may produce irritation, burning, or destruction of tissues in the respiratory tract, characterized by coughing choking, pain, or shortness of breath. Severe overexposure may lead to fatal lung damage. Ingestion can cause abdominal pain, nausea, vomiting, and collapse, along with tissue destruction in the gastrointestinal tract.

CHRONIC EFFECTS OF OVEREXPOSURE:
Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.
None of the ingredients are listed as carcinogens by IARC, NTP, or OSHA.
EST'D PEL/TLV: Not established PRIMARY ROUTES OF ENTRY: N/A

HMIS CODES: HEALTH 3; FLAM. 0; REACT. 2; PERS. PROTECT. G ; CHRONIC HAZ. YES

FIRST AID PROCEDURES:
SKIN: Immediately flush contaminated skin with plenty of water for at least 15 minutes. Get medical attention immediately.
EYES: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Get medical attention at once.
INHALE: Move exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Get medical attention immediately.
INGEST: If this product is swallowed, do not induce vomiting. If victim is conscious give plenty of water to drink. Get medical attention at once.

SECTION IV - SPECIAL PROTECTION INFORMATION

PROTECTIVE CLOTHING: Wear rubber or neoprene gloves and a face shield when using. A rubber apron and boots are strongly recommended.
EYE PROTECTION: Wear splash-proof safety goggles especially if contact lenses are worn.
RESPIRATORY PROTECTION: If ventilation is inadequate, wear a properly fitting MSHA or OSHA-approved respirator.
VENTILATION: If vapors are detected, ventilate work area by opening windows and using exhaust fans.

SECTION V - PHYSICAL DATA

BOILING POINT (F):	~ 220	SPECIFIC GRAVITY:	1.55
VAPOR PRESSURE(mmHg):	N/A	EVAPORATION RATE (=1):	N/A
VAPOR DENSITY(AIR=1):	N/A	pH(CONCENTRATE):	< 1.0
SOLUBILITY IN WATER:	COMPLETE	pH(USE DILUTION OF 1% SOLUTION):	1.0
VOC CONTENT (CONCENTRATE):	0.0%		

APPEARANCE AND ODOR: A COLORLESS LIQUID WITH NO ODOR.

(Continued on Page: 2)

MATERIAL SAFETY DATA SHEET

—SECTION I—
PRODUCT IDENTIFICATION

KRYLON INDUSTRIAL
31500 SOLON ROAD
SOLON, OH 44139

EMERGENCY TELEPHONE NO.
(216) 292-7400
INFORMATION TELEPHONE NO.
(800) 247-3266

DATE OF PREPARATION
20 - JUL - 94

Primers

PRIMER/KRI

—SECTION II— CAS No.	HAZARDOUS INGREDIENT (percent by weight)	ACGIH TLV <STEL>	OSHA PEL <STEL>	Units	Vapor Pressure (mm Hg)	1340 Zinc Rich	*All Purpose* 1356 White	1357 Ruddy Brown	1358 Gray	*Rust Inhibitive* 1345 Yellow	1346 Green	1373 Sandette Filler Surface Primer
74-98-6	Propane (propellant)		1000	PPM	760.0	15	17	17	17	16	16	16
742-89-8	V. M. & P. Naphtha	300	300 <400>	PPM	12.0	1						4
108-88-3 $	Toluene	50	100 <150>	PPM (Skin)	22.0		23	27	27	6	6	
330-20-7 $	Xylene	100 <150>	100 <150>	PPM	5.9	10				12	12	18
78-83-1	2-Methyl-1-Propanol	50	50	PPM	8.7							2
78-93-3 $	Methyl Ethyl Ketone	200 <300>	200 <300>	PPM	70.0	34						
67-64-1 $	Acetone	750 <1000>	750 <1000>	PPM	760.0		34	34	34	48	48	41
7440-66-6 $	Zinc	Not Established				38						
14807-96-6	Talc	2	2	Mg/M3	as Resp. Dust					5	5	9
13463-67-7	Titanium Dioxide	10	10[5]	Mg/M3 [Resp.	as Dust Fraction]		6		3			1
1317-34-1 $	Zinc Molybdate	Not Established								2	2	
	VOC as a percent by weight per BAAQMD Rule 49					59	62	60	62	63	63	62
	NFPA Code 30B Level					3	3	3	3	3	3	3
	HMIS® Ratings (Health - Flammability - Reactivity)					2-4-0	2-4-0	2-4-0	2-4-0	2-4-0	2-4-0	2-4-0

$ Ingredient subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313, 40 CFR 372.65 C

→→→ *MSDS Text Page Follows* →→→

Section III — PHYSICAL DATA

PRODUCT WEIGHT	– N.A.	*EVAPORATION RATE*	– Faster than Ether
SPECIFIC GRAVITY	– N.A.	*VAPOR DENSITY*	– Heavier than Air
BOILING RANGE	– 48-389 °F	*MELTING POINT*	– N.A.
SOLUBILITY IN WATER	– N.A.		

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION *FLASH POINT* <0 °F PMCC *LEL* 1.0 *UEL* 12.8
Extremely Flammable, Flash below 20 °F
EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V — HEALTH HAZARD DATA

ROUTES OF EXPOSURE
Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation, and personal protective equipment.
ACUTE Health Hazards
EFFECTS OF OVEREXPOSURE
Irritation of eyes, skin and respiratory system. May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
EMERGENCY AND FIRST AID PROCEDURES
If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
If SWALLOWED: Get medical attention.
CHRONIC Health Hazards
No ingredient in these products is an IARC, NTP or OSHA listed carcinogen.
Methyl Ethyl Ketone may increase the nervous system effects of other solvents.
Prolonged overexposure to solvent ingredients in Section II may cause adverse effects to the liver, urinary, blood-forming, cardiovascular, and reproductive systems.
Rats exposed to titanium dioxide dust at 250 mg./m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Section VI — REACTIVITY DATA

STABILITY – Stable
INCOMPATIBILITY
None known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section II
HAZARDOUS POLYMERIZATION – Will Not Occur

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers. Waste from products containing Methyl Ethyl Ketone and/or Zinc may also require testing for extractability.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

Section VIII — PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.
These coatings may contain materials classified as nuisance particulates (listed "as Dust" in Section II) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section II, the applicable limits for nuisance dusts are ACGIH TLV 10 mg./m3 (total dust), OSHA PEL 15 mg./m3 (total dust), 5 mg./m3 (respirable fraction).
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section II.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for protection against non-volatile materials in Section II.
PROTECTIVE GLOVES
None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant gloves.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.

Section IX — PRECAUTIONS

DOT STORAGE CATEGORY – 1A
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120 °F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.
OTHER PRECAUTIONS
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section X — OTHER REGULATORY INFORMATION

CALIFORNIA PROPOSITION 65
Several products (see table) contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Common Name	**Triethylene Glycol Reprocessed**
Supplier	COASTAL CHEMICAL CO.,L.L.C. 3520 Veterans Memorial Drive ABBEVILLE, LA 70510 318-893-3862
Synonym	Not available.
Trade name	Not available.
Material Uses	Not available.
Manufacturer	Various

Code	93101
MSDS#	Not available.
Validation Date	8/8/96
Print Date	5/12/99

In case of Emergency	Transportation Emergency Call CHEMTREC 800-424-9300 Other Information Call Joe Hudman 713-477-6675

Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight	TLV/PEL	LC_{50}/LD_{50}
Diethylene glycol	111-46-6	0-5	Not available.	**ORAL (LD50)** mg/kg: Acute: 12565 (Hamster.). 14800 (Rat). **DERMAL (LD50)** mg/kg: Acute: 11890 (Hamster.). 11900 (Rabbit).
Triethylene Glycol	112--27-6	95-100		

Section 3. Hazards Identification

Emergency Overview	CAUTION! MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN IRRITATION.
Routes of Entry	Eye contact. Ingestion. Skin contact. Inhalation.
Potential Acute Health Effects	Slightly dangerous to dangerous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. This product may irritate eyes and skin upon contact.
Potential Chronic Health Effects	**CARCINOGENIC EFFECTS:** Not available. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS** : Not available. The substance is toxic to blood, kidneys, liver. Toxicity of the product to the reproductive system: Not available. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Hazardous Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Hazardous Inhalation	No additional information.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention.

Continued on Next Page

Hazardous Ingestion	DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product	Combustible.
Auto-Ignition Temperature	The lowest known value is 227.78°C (442°F) (Diethylene glycol).
Flash Points	The lowest known value is CLOSED CUP: 138°C (280.4°F) OPEN CUP: 143°C (280.4°F) (Cleveland) (Diethylene glycol)
Flammable Limits	The greatest known range is LOWER: 2% UPPER: 12.3% (Diethylene glycol)
Products of Combustion	These products are carbon oxides (CO, CO2).
Fire Hazards in Presence of Various Substances	Very slightly to slightly flammable in presence of open flames and sparks, of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO2, water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
Special Remarks on Fire Hazards	When heated to decomposition, it emits acrid smoke and irritating fumes. (Diethylene glycol)
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Combustible material. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7. Handling and Storage

Handling	Not available.
Storage	Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engeneering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	Safety glasses. Lab coat. Gloves (impervious).
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Chemical Name or Product Name	CAS #	Exposure Limits
2,2'-Oxydiethanol Triethylene Glycol	111-46-6 112-27-6	No: available.

Continued on Next Page

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.
Molecular Weight	Not applicable.
pH (1% soln/water)	Neutral.
Odor	Not available.
Taste	Not available.
Color	Not available.
Boiling Point	The lowest known value is 245.8°C (474.4°F) (Diethylene glycol). Weighted average: 284.02°C (543.2°F)
Melting Point/Pour Point	May start to solidify at -5°C (23°F) based on data for: Triethylene Glycol. Weighted average: -5.09°C (22.8°F)
Critical Temperature	Not available.
Specific Gravity	Weighted average: 1.12 (Water = 1)
Vapor Pressure	The highest known value is 0.01 mm of Hg (@ 20°C) (Diethylene glycol).
Vapor Density	The highest known value is 6.7 (Air = 1) (Tetraethylene glycol). Weighted average: 6.7 (Air = 1)
Volatility	Not available.
Odor Threshold	Not available.
Evaporation rate	Not available.
Viscosity	Not available.
Water/Oil Dist. Coeff.	Not available.
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, methanol, diethyl ether.
Solubility	Easily soluble in cold water, hot water, methanol, diethyl ether.
Physical Chemical Comments	Not available.

Section 10. Stability and Reactivity Data

Chemical Stability	The product is stable.
Conditions of Instability	No additional remark.
Incompatibility with various substances	Very slightly to slightly reactive with oxidizing agents.
Hazardous Decomposition Products	Not available.
Hazardous Polymerization	Not available.

Section 11. Toxicological Information

Toxicity to Animals	Acute oral toxicity (LD50): > 5000 mg/kg (Hamster.) (Calculated value for the mixture). Acute dermal toxicity (LD50): > 5000 mg/kg (Hamster.) (Calculated value for the mixture).
Chronic Effects on Humans	The substance is toxic to blood, kidneys, liver. Toxicity of the product to the reproductive system: Not available.
Other Toxic Effects on Humans	Slightly dangerous to dangerous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	No additional remark.
Special Remarks on Chronic Effects on Humans	No additional remark.
Special Remarks on other Toxic Effects on Humans	Experimentally tumorigen by inhalation. Exposure can cause nausea, headache and vomiting. (Diethylene glycol)

Continued on Next Page

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation	No additional remark.

Section 13. Disposal Considerations

Waste Disposal

Section 14. Transport Information

Proper Shipping Name	NONE
DOT Classification	Not a DOT controlled material (United States).
DOT Identification Number	Not applicable (PIN and PG).
Packing Group	NONE
Hazardous Substances Reportable Quantity (kg)	Not available.
Special Provisions for Transport	Not applicable.

Section 15. Regulatory Information

Federal and State Regulations The following product(s) is (are) listed by the State of Minnesota: Diethylene glycol

Other Classifications	**WHMIS (Canada)**	Not controlled under WHMIS (Canada).
	DSCL (EEC)	Not controlled under DSCL (Europe).

Section 16. Other Information

HMIS (U.S.A.)

[illegible]	2
Fire Hazard	1
Reactivity	0
Personal Protection	B

National Fire Protection Association (U.S.A.)

References Not available.

Other Special Considerations No additional remark.

Validated by Joe Hudman on 8/8/96.

Verified by Joe Hudman.

Printed 5/12/99.

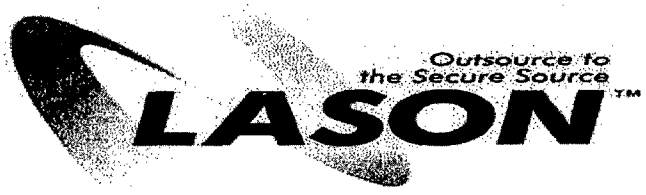
Transportation Emergency Call
CHEMTREC 800-424-9300
Other Information Call
Joe Hudman
713-477-6675

Continued on Next Page

Triethylene Glycol Reprocessed

Notice to Reader **Page Number: 5**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



THE REPRODUCTION OF

THE

FOLLOWING

DOCUMENT (S)

CANNOT BE IMPROVED

DUE TO

THE CONDITION OF

THE ORIGINAL

District I - (505) 393-6161
P.O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator Buelington
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Val Verde Plant
2. Management Facility Destination Key Disposal	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 Aztec, NM 87499 MAIL P.O. Box 900 Farmington NM	8. State NM
7. Location of Material (Street Address or ULSTR) Bloomfield, NM Sec 14, T29N, R11W	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Spent wash water from cleaning Plate and Frame exchangers and Amine Reboilers

RECEIVED
MAR 17 2000
Environmental Bureau
Oil Conservation Division

MAR 2000
RECEIVED
OIL CON. DIV
DIST. 3

E-Mail to Denny 3/28

Mail to Denny 3/28

Estimated Volume < 1000 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: _____ TITLE: Agent DATE: 3-21-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: Michael Talovich TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: Denny Foust TITLE: Geologist DATE: 3/23/00

APPROVED BY: _____ TITLE: _____

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Burlington Resources 3535 East 30th Street Farmington, NM 87401	KEY ENERGY DISPOSAL
3. Originating Site (name):	**Location of the Waste (Street address &/or ULSTR):**
Val Verde Plant Attach list of originating sites as appropriate	Val Verde Plant
4. Source and Description of Waste	Process and products used that generate this waste have not changed since last waste analysis and profile established in 1997 and 1999.

I, Gregg Wurtz representative for:

Burlington Resources do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1998, regulatory determination, the above-described waste is: (Check appropriate classification)

_____ **EXEMPT** oilfield waste

__X__ **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

_____ MSDS Information

_____ Other (description):

__X__ RCRA Hazardous Waste Analysis

_____ Chain of Custody

Name (Original Signature): Gregg Wurtz

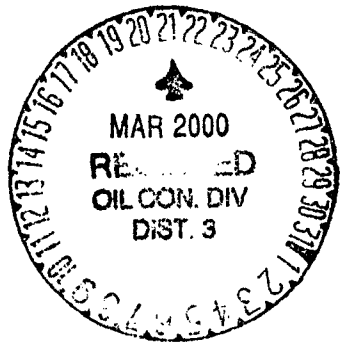
Title: Environmental Representative

Date: Monday, March 06, 2000

BURLINGTON RESOURCES

SAN JUAN DIVISION

March 16, 2000



New Mexico Oil Conservation Division
Attn: Denny Foust
1000 Rio Brazos Road
Aztec, NM 87410

Re: Approval to dispose of Burlington Resources Oil & Gas Company's Val Verde Plant non exempt nonhazardous spent plate and frame cleaning solution.

Mr. Foust:

Burlington Resources is requesting OCD approval to dispose of the spent plate and frame cleaning solution at Key Energy Services, Farmington, NM disposal facility.

Attached are copies of chemical profile analysis of the spent cleaning solution proposed for disposal.

As per OCD's request, included are: 1) metals analysis, 7/30/99 including the chain of custody; 2) complete waste profile analysis, 3/4/97; and 3) Flash Point analysis, 3/14/00.

The data provided coupled with the generator knowledge of the process and products used determined this cleaning solution to be non exempt nonhazardous.

If you have additional questions concerning this request please contact Gregg Wurtz at 326-9537.

Sincerely,

Gregg Wurtz

Gregg Wurtz
Environmental Representative

cc: Correspondence
Val Verde Plant waste file

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

August 2, 1999

Jeff Schoenbacher
Burlington Resources
3535 E. 30th St.
Farmington, NM 87402

Dear Jeff:

Enclosed please find the reports for the samples received by our laboratory for rush analysis on July 26, 1999.

If you have any questions about the results of these analyses, please don't hesitate to call me at your convenience.

Thank you for using IML for your analytical needs!

Sincerely,

Sharon Williams

Sharon Williams
Organics Lab Supervisor

Enclosure

xc: File

imL Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

BURLINGTON RESOURCES

Case Narrative

On June 26, 1999, two samples were submitted to Inter-Mountain Laboratories - Farmington for rush analysis. Analysis for TCLP Metals were performed on the samples as per the accompanying Chain of Custody document.

Extractions were performed on the samples by "Toxicity Characteristic Leaching Procedure", Method 1311, SW-846, Rev. 0, July 1992.

Digestion of the extracted samples were performed by "Acid Digestion of Aqueous Samples and Extracts for Total Metals", Method 3010, SW-846, Rev. 1, July 1992.

Trace metal analysis were performed on the samples by"Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" , SW-846, United States Environmental Protection Agency, November, 1986.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Sharon Williams
Organic Analyst

Inter·Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: TCLP's
Sample ID: V V P Plate Cleaning Waste #1
Lab ID: 0399W03764
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 08/02/99
Date Sampled: 07/26/99
Date Received: 07/26/99
Date Analyzed: 07/30/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP METALS - EPA METHOD 1311				
Arsenic	<0.25	0.25	5.0	mg/L
Barium	<0.5	0.5	100.0	mg/L
Cadmium	<0.2	0.2	1.0	mg/L
Chromium	<0.5	0.5	5.0	mg/L
Lead	<0.5	0.5	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.25	0.25	1.0	mg/L
Silver	<0.5	0.5	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: Sharon Williams
Sharon Willams, Organic Lab Supervisor

imL Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: TCLP's
Sample ID: V V P Plate Cleaning Waste #2
Lab ID: 0399W03765
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 08/02/99
Date Sampled: 07/26/99
Date Received: 07/26/99
Date Analyzed: 07/30/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP METALS - EPA METHOD 1311				
Arsenic	<0.25	0.25	5.0	mg/L
Barium	1	0.5	100.0	mg/L
Cadmium	<0.2	0.2	1.0	mg/L
Chromium	<0.5	0.5	5.0	mg/L
Lead	<0.5	0.5	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.25	0.25	1.0	mg/L
Silver	<0.5	0.5	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: Sharon Williams
Sharon Williams, Organic Lab Supervisor

imL Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

QUALITY CONTROL / QUALITY ASSURANCE

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Spike Analysis / Blank Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client:	**Burlington Resources**	Date Reported:	07/30/99
Project:	TCLP's	Date Analyzed:	07/30/99
Sample Matrix:	Extract	Date Received:	07/26/99

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Arsenic	0.46	<0.005	0.50	**92%**
Barium	0.82	0.24	0.50	**116%**
Cadmium	0.39	<0.004	0.50	**78%***
Chromium	0.39	<0.01	0.50	**78%***
Lead	0.85	<0.05	1.00	**85%**
Mercury	0.005	<0.001	0.005	**104%**
Selenium	0.88	<0.005	1.00	**88%**
Silver	0.39	<0.01	0.50	**78%***

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Arsenic	**ND**	0.25	mg/L
Barium	**ND**	0.5	mg/L
Cadmium	**ND**	0.2	mg/L
Chromium	**ND**	0.5	mg/L
Lead	**ND**	0.5	mg/L
Mercury	**ND**	0.001	mg/L
Selenium	**ND**	0.25	mg/L
Silver	**ND**	0.5	mg/L

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments: * Spike recovery failed to meet established QC limits due to matrix interferences.

Reported by _____

Reviewed by _____

imL Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

Client:	**Burlington Resources**	Date Reported:	08/02/99
Project:	TCLP's	Date Analyzed:	07/30/99
Sample Matrix:	Extract	Date Received:	07/26/99

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Arsenic	2.02	2.00	**101%**	mg/L
Barium	1.88	2.00	**94%**	mg/L
Cadmium	1.93	2.00	**98%**	mg/L
Chromium	1.96	2.00	**98%**	mg/L
Lead	1.94	2.00	**97%**	mg/L
Mercury	0.004	0.004	**108%**	mg/L
Selenium	2.05	2.00	**103%**	mg/L
Silver	0.51	0.50	**102%**	mg/L

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____ Reviewed by _____

inl
Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Rocky Flats Resc. / Plate Cleaning Waste	VVP	
Sampler: (Signature)	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TCLP Metals				Remarks
#1	7/16/99		0799W03764	Liquid	1	✓				
#2	"		3765	Liquid	1	✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	7/16/99	21:00			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
				7/16/99	9:00
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945	☐ 1701 Phillips Circle Gillette, Wyoming 82718 Telephone (307) 682-8945	☐ 2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	☐ 1160 Research Drive Bozeman, Montana 59718 Telephone (406) 586-8450	☐ 11183 State Hwy. 30 College Station, TX 77845 Telephone (409) 776-8945

51911

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
[illegible] Plate Cleaning Waste	VDP
Sampler: (Signature)	**Chain of Custody Tape No.**
[signature]	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TCLP Metals				Remarks
#1	7/26/89			Liquid	1	✓				
#2	X			Liquid	1	✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	7/26/[illegible]	11:00			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
			[signature]	7/26/[illegible]	9:30
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☐ 1160 Research Drive, Bozeman, Montana 59718, Telephone (406) 586-8450
☐ 11183 State Hwy. 30, College Station, TX 77845, Telephone (409) 776-8945

51911

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

March 15, 2000

Gregg Wurtz
Burlington Resources
3535 E. 30th St.
Farmington, NM 87402

Dear Gregg:

Enclosed please find the report for the sample received by our laboratory for analysis on March 14, 2000.

If you have any questions about the result of the analysis, please don't hesitate to call me at your convenience.

Thank you for choosing IML for your analytical needs!

Sincerely,

Sharon Williams
Organics Lab Supervisor

Enclosure

xc: File

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

BURLINGTON RESOURCES

Case Narrative

On March 14, 2000, one sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The sample was received intact. Analysis for Ignitability (Flash Point), was performed on the sample as per the accompanying Chain of Custody # 63353.

Flash Point was performed on the sample by "Standard Test Methods for Flash Point By Pensky-Martens Closed Tester", Annual Book of ASTM Standards, D93-80.

It is the policy of this laboratory to employ, whenever possible, preparatory and anlytical methods which have been approved by regulatory agencies.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Sharon Williams

Sharon Williams
Organics Lab Supervisor

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Flash Point

Client:	**Burlington Resources**		
Project:	Val Verde Plant	Date Reported:	03/15/00
Sample ID:	VVP Plate/Frame Wash	Date Sampled:	03/14/00
Laboratory ID:	0300W01112	Date Received:	03/14/00
Sample Matrix:	Liquid	Date Analyzed:	03/14/00
Condition:	Intact		

Analyte	Result	Units
Flash Point	>140	°F

References: Annual Book of ASTM Standards, Method D93-80.

Reported by: _____

Reviewed by: _____

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

QUALITY CONTROL / QUALITY ASSURANCE

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Quality Control / Quality Assurance

Known Analysis
FLASH POINT

Client: **Burlington Resources**
Project: Val Verde Plant
Sample Matrix: Liquid

Date Reported: 03/15/00
Date Analyzed: 03/14/00
Date Received: 03/14/00

Parameter	Found Result	Known Result
p-Xylene	76°F	77°F

Reference: Annual Book of ASTM Standards, Method D93-80.

Comments:

Reported by _____

Reviewed by _____

imi
Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Burlington Resources	Val Verde Plant	

Sampler: (Signature)	Chain of Custody Tape No.
J. Gregg Wurtz for Val Verde Plant	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Flash Point				Remarks
VVP Plate/Frame Wash	~~3/14/00~~ 3/13/00	10:00	0300W01112	Liquid	1	X				Report results to Gregg Wurtz 326-9537

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
J. Gregg Wurtz	3/14/00	9:51			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time
				3/14/00	9:51

Inter-Mountain Laboratories, Inc.

☐ 555 Absaraka, Sheridan, Wyoming 82801, Telephone (307) 674-7506
☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☐ 11183 State Hwy. 30, College Station, TX 77845, Telephone (409) 776-8945

63353

Contract Environmental Services, Inc.
Post Office Box 3376
Farmington, New Mexico 87499
Phone (505) 325-1198

March 4, 1997

Burlington Resources
Mr. Craig Bock
3535 E. 30th Street
Farmington, New Mexico 87401

RE: Written Procedure For Sampling Steel Tank, Spent Scale Cleaning Solution, Val Verde Plant, Bloomfield, New Mexico

Dear Mr. Bock,

Contract Environmental Services, Inc. (CES) is pleased to present this sampling procedure for the above described site to Burlington Resources (BR). Sampling will be broken down into two (2) parts. Part one (1) will be sampling the liquid and part two (2) will be sampling the bottom sludge (if any).

Part 1 - Top to bottom liquid samples will be obtained using a 3/4" PVC sample tube. The PVC will be lowered into the fluid until the bottom is encountered. A rubber stopper will be inserted into the exposed end just above the liquid level. The PVC sampler will be extracted and the contents placed in a stainless steel canister for mixing. A total of three (3) liquid samples will be taken for compositing.

Part 2 - The bottom sludge (if any) will be sampled using a PVC sample tube with an eight (8) ounce glass sample jar secured with zip ties at one end. If sludge is encountered, a sample will be gathered from the center and each side. The three (3) sludge samples will be added to the same stainless steel canister to be composited with the liquid previously obtained.

The liquid and solids will be thoroughly mixed and samples for laboratory analysis will be gathered from the stainless steel container.

Samples will be adequately preserved as directed by the lab and carefully packaged for shipping to Assaigai Laboratory of Albuquerque for analyses. Chain-of-custody records will accompany the sample from the time they are gathered until the analyses are completed at the laboratory. The lab has been informed of our request for "Rush" analyses and have scheduled the work prior to receiving the samples. They have committed to a five (5) working day turn-around-time. Assaigai will receive the samples on Thursday morning by 10:00 am to begin the analyses. We should expect results on or before Thursday, March 13th, 1997.

All sampling equipment will be wiped down on site and either decontaminated or properly disposed of.

Contract Environmental Services, Inc. appreciates this opportunity to submit this sampling procedure to Burlington Resources and looks forward to serving your firm on this and other projects in the near future.

Sincerely,

Shawn A. Adams
Contract Environmental Services, Inc.

cc: 3042
Val Verde Plant
Plate Exchange - Wash Wa

ASSAIGAI ANALYTICAL LABORATORIES, INC.
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

Report Generated:
March 12, 1997 14:42

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT CONTRACT ENVIRONMENTAL SERV
TO: PO BOX 3376
FARMINGTON, NM 87499

WORKORDER # : 9703041
WORK ID : MOI-VAL VERDE
CLIENT CODE : CONT01
DATE RECEIVED : 03/06/97

ATTN: SHAWN ADAMS

Lab ID: 9703041-01A
Sample ID: VALV-100
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	03/10/97	WFLASH204
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	03/11/97	W97114
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	03/11/97	W97114

Lab ID: 9703041-01B
Sample ID: VALV-101
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CORROS(NACE)/SW846 1110						
Corrosivity (NACE)	ND	mm/yr	6.0	1.0	03/07/97	WNACE035

Lab ID: 9703041-01C
Sample ID: VALV-102/103
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TCLP SV/METHOD 1311/8270B						
1,4-Dichlorobenzene	ND	mg/L	0.0010	290	03/08/97	TSVOA186
2-Methylphenol / O-Cresol	ND	mg/L	0.0010	290	03/08/97	TSVOA186
3/4-Methylphenol / M/P-Cresol	ND	mg/L	0.0010	290	03/08/97	TSVOA186
Hexachloroethane	ND	mg/L	0.0010	290	03/08/97	TSVOA186
Nitrobenzene	ND	mg/L	0.0010	290	03/08/97	TSVOA186
Hexachlorobutadiene	ND	mg/L	0.0010	290	03/08/97	TSVOA186
2,4,6-Trichlorophenol	ND	mg/L	0.010	290	03/08/97	TSVOA186
2,4,5-Trichlorophenol	ND	mg/L	0.010	290	03/08/97	TSVOA186
2,4-Dinitrotoluene	ND	mg/L	0.010	290	03/08/97	TSVOA186
Hexachlorobenzene	ND	mg/L	0.0010	290	03/08/97	TSVOA186
Pentachlorophenol	ND	mg/L	0.020	290	03/08/97	TSVOA186
Pyridine	ND	mg/L	0.010	290	03/08/97	TSVOA186
TCLP SVOA XT/1311/3520	03/07/97	N/A				

Lab ID: 9703041-01D
Sample ID: VALV-104
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
pH/EPA 150.1						
pH	8.7	pH Units	0.10	1.0	03/07/97	WPH479

Lab ID: 9703041-01E
Sample ID: VALV-105
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	1.00	% (Percent)				
TCLP (ICP) DIG/1311/3005	03/09/97	N/A				
TCLP EXTRACTION/TCLP 1311	03/06/97	N/A				
TCLP METALS/1311/SW8466010						
Arsenic, As	ND	mg/L	0.40	1.0	03/10/97	M97180,97178
Barium, Ba	ND	mg/L	0.50	1.0	03/10/97	M97180,97178
Cadmium, Cd	ND	mg/L	0.0050	1.0	03/10/97	M97180,97178
Chromium, Cr	ND	mg/L	0.020	1.0	03/10/97	M97180,97178
Lead, Pb	ND	mg/L	0.050	1.0	03/10/97	M97180,97178
Mercury, Hg	ND	mg/L	0.0020	1.0	03/11/97	M97180,97178
Selenium, Se	ND	mg/L	0.050	1.0	03/10/97	M97180,97178
Silver, Ag	ND	mg/L	0.040	1.0	03/10/97	M97180,97178
TCLP(CVAA)Hg XT/SW846 7471	03/10/97	N/A				

Lab ID: 9703041-01F
Sample ID: VALV-106/107 A/B
Collected: 03/05/97 12:00:00
Matrix: LIQUID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TCLP ZHE / TCLP 1311	03/06/97	N/A				
ZHE/VOA/METHOD 1311/8240B						
Vinyl Chloride	ND	mg/L	0.0050	5.0	03/07/97	TVOA278
1,1-Dichloroethene	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
Chloroform	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
1,2-Dichloroethane	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
2-Butanone (MEK)	ND	mg/L	0.0050	5.0	03/07/97	TVOA278
Carbon Tetrachloride	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
Trichloroethene	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
Benzene	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
Tetrachloroethene	ND	mg/L	0.0010	5.0	03/07/97	TVOA278
Chlorobenzene	ND	mg/L	0.0010	5.0	03/07/97	TVOA278

Fred L. Shore, Ph.D.
VP of Laboratory Operations

WORKORDER COMMENTS

DATE : 03/12/97
WORKORDER:

DEFINITIONS/DATA QUALIFIERS

The following are definitions, abbreviations, and data qualifiers which may have been utilized in your report:

ND	= Analyte "not detected" in analysis at the sample specific detection limit.
D_F	= Sample "dilution factor"
NT	= Analyte "not tested" per client request.
B	= Analyte was also detected in laboratory method QC blank.
E	= Analyte concentration (result) is an estimated value or exceeds analysis calibration range.
LIMIT	= The minimum amount of the analyte that AAL can detect utilizing the specified analysis.

Please Note: Multiply the "Limit" value (AAL's Detection Limit) by Dilution Factor (D_F) to obtain the sample specific Detection Limit.

REPORT COMMENTS

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES SERVICES, INC

Lab job no.: 3141 Date 3/5/97

Page 1 of 1

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client CONTRACT ENVIRONMENTAL

Address PO Box 3376

City / State / Zip FARMington NM 87499

Project Name / Number MOI - VAL VERDE

Contract / Purchase Order / Quote CONTRACTENV

Project Manager / Contact SHAWN ADAMS

Telephone No. (505) 325-1198

Fax No. (same (call)

Samplers: (Signature) Shawn Adams

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required: Rush RCRA	BTEX	TCLP SVOA	TCLP SVOA	PH	TCLP - MT	TCLP VOA		Remarks
1A	VALV-100	3/5/97	12:00	LIQ	8 oz glass		no	1	X								Composite Tank Sample
1B	VALV-101	"	"	"	2½ x 7" Plastic		no	1		+							"
1C	VALV-102	"	"	"	4 x 6" Amber		no	1			X						"
	VALV-103	"	"	"	4 x 6" Amber		no	1				X					"
1D	VALV-104	"	"	"	2 x 5¼" Plastic		no	1					X				"
1E	VALV-105	"	"	"	3¾ x 6" Plastic		no	1						X			"
1F	VALV-106 A/B	"	"	"	VOAS		no	2							X		"
1G	VALV-107 A/B	"	"	"	VOAS		no	2							X		"

Relinquished by:
Signature Shawn Adams
Printed SHAWN ADAMS
Company CONTRACT ENV. SVCS.
Reason Analyses
Date 3/5/97
Time 2:00

Received by:
Signature
Printed
Company Fed-Ex
Reason

Relinquished by:
Signature
Printed
Company Fed-Ex
Reason

Date 3/6/97
Time 1415

Received by:
Signature
Printed
Company
Reason

Method of Shipment: COURIER
Shipment No.
Special Instructions:

Comments: "RUSH" 5-DAY
RECEIVE DUE BY 3/13/97
Blender/
Shake And analyse liquid phase only
not solid phase

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☒ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
MAR 09 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator Burlington
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Val Verde Plant
2. Management Facility Destination Key Disposal	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 Aztec NM 87499 MAIL: PO Box 900 Farmington NM	8. State NM
7. Location of Material (Street Address or ULSTR) Bloomfield, NM Sec 14; T29N; R11W	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Spent wash water from cleaning plate and frame exchangers and Amine Reboilers.

Send Correct Analysis 1997.

MAR 2000 RECEIVED OIL CON. DIV DIST. 3

Estimated Volume < 100 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: _____ TITLE: mgr DATE: 3-7-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: _____ TELEPHONE NO. _____

(This space for State Use)

APPROVED BY: Denny G. Foust TITLE: Geologist DATE: 3/8/00

APPROVED BY: DENIED TITLE: _____ DATE: _____

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Burlington Resources 3535 East 30 th Street Farmingto NM 87401	Sunco Disposal
3. Originating Site (name):	**Location of the Waste (Street address /or ULSTR):**
Val Verde Plant	Val Verde Plant
4. Source and Description of Waste:	
Val Verde plate exchanger washing. Process and products used that generate this waste have not changed since last waste analysis and profile established in 1997 and 1999.	

I, Greg Wurtz representative for:

Burlington Resources do hereby certify that,

according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check the appropriate classi

☐ **EXEMPT oilfield waste**

☑ **NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification.**

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (chech appropriate items):

___ **MSDS Information**
X **RCRA Hazardous Waste Analysis**
___ **Chain of Custody**
___ **Other (description):**

Name (Original Signature): Gregg Wurtz
Title: Environmental Representative
Date: Monday, March 06, 2000

imL

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: TCLP's
Sample ID: V V P Plate Cleaning Waste #1
Lab ID: 0399W03764
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 08/02/99
Date Sampled: 07/26/99
Date Received: 07/26/99
Date Analyzed: 07/30/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP METALS - EPA METHOD 1311				
Arsenic	<0.25	0.25	5.0	mg/L
Barium	<0.5	0.5	100.0	mg/L
Cadmium	<0.2	0.2	1.0	mg/L
Chromium	<0.5	0.5	5.0	mg/L
Lead	<0.5	0.5	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.25	0.25	1.0	mg/L
Silver	<0.5	0.5	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: Sharon Williams

Sharon Willams, Organic Lab Supervisor

imL

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: TCLP's
Sample ID: V V P Plate Cleaning Waste #2
Lab ID: 0399W03765
Matrix: Liquid
Condition: Cool/Intact

Date Reported: 08/02/99
Date Sampled: 07/26/99
Date Received: 07/26/99
Date Analyzed: 07/30/99

Parameter	Analytical Result	PQL	MCL	Units
TCLP METALS - EPA METHOD 1311				
Arsenic	<0.25	0.25	5.0	mg/L
Barium	1	0.5	100.0	mg/L
Cadmium	<0.2	0.2	1.0	mg/L
Chromium	<0.5	0.5	5.0	mg/L
Lead	<0.5	0.5	5.0	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.25	0.25	1.0	mg/L
Silver	<0.5	0.5	5.0	mg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: Sharon Williams

Sharon Williams, Organic Lab Supervisor

ZENON LABORATORIES

5555 North Service Road
Burlington, Ontario, Canada L7L 5H7
Tel: (905) 332-8788
Fax: (905) 332-9169

Certificate of Analysis

CLIENT INFORMATION

Attention:	Cory Chance
Client Name:	Philip Environmental Inc.
Project:	16522
Project Desc:	Val Verde
Address:	4000 Monroe Road Farmington, NM 87401
Fax Number:	505 326-2388
Phone Number:	505 326-2262

LABORATORY INFORMATION

Contact:	Ada Blythe, B.Sc., C.Chem.
Project:	AN961139
Date Received:	97/02/06
Date Reported:	97/02/19
Submission No.:	7B0122
Sample No.:	003593-003594

NOTES: ***"-' = not analysed '<' = less than Method Detection Limit (MDL) 'NA' = no data available***
LOQ can by determined for all analytes by multiplying the appropriate MDL X 3.33
Solids data is based on dry weight except for biota analyses.
Organic analyses are not corrected for extraction recovery standards except for isotope dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Seventeenth Edition. Other methods are based on the principles of MISA or EPA methodologies.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of three weeks from receipt of data or as per contract.

COMMENTS:

"NR" Not recovered. The extract was very dark and the phenol surrogate was diluted out and lost in the background interferences.

The semi-volatile sample was analysed at a ten times dilution due to the dark, viscous nature of the extract.

"NS" = Not spiked

Certified by: C Blythe

	Client ID:		VVT-2597
	Zenon ID:		003594 97
	Date Sampled:		97/02/05
Component	**MDL**	**Units**	
pH (20 DEG C)			7.02
Sulphide ***via SW846 9030***	0.20	mg/L	<
Cyanide ***via SW846 Method 9010***	0.010	mg/L	<
Mercury ***via SW846 Method 7470***	0.05	ug/L	0.10
TCLP Metals ***via SW846 Method 6010***			
Arsenic	0.020	mg/L	0.029
Barium	0.001	"	0.15
Cadmium	0.002	"	<
Chromium	0.004	"	0.021
Lead	0.020	"	0.042
Selenium	0.060	"	<0.066
Silver	0.010	"	<0.011
Flash Point ***via SW846 Method 1010***	0.1	C	54
TCLP Volatiles ***via SW846 Method 8260***			
Benzene	0.2	ug/L	<2.0
2-Butanone	5.0	"	<50
Carbon Tetrachloride	0.3	"	<3.0
Chlorobenzene	0.6	"	<6.0
Chloroform	0.4	"	<4.0
1,2-Dichloroethane	0.4	"	<4.0
1,1-Dichloroethene	0.4	"	<4.0
Pyridine	250	"	<2500
Tetrachloroethene	0.2	"	<2.0
Trichloroethene	0.3	"	<3.0
Vinyl Chloride	2.9	"	<29
1,4-Dichlorobenzene	0.2	"	11
Surrogate Recoveries		%	
d4-1,2-Dichloroethane			98
d8-Toluene			104
1,4-Bromofluorobenzene			97

	Client ID:		VVT-2597
	Zenon ID:		003594 97
	Date Sampled:		97/02/05
Component	**MDL**	**Units**	
TCLP Semi-Volatiles ***via SW846 Method 8270***			
o-Cresol	1.7	ug/L	<8.5
m&p-Cresol	3.5	"	<18
1,4-Dichlorobenzene	2.0	"	<10
2,4-Dinitrotoluene	0.5	"	<2.5
Nitrobenzene	2.0	"	<10
Pentachlorophenol	1.1	"	<5.5
2,4,5-Trichlorophenol	0.6	"	<3.0
2,4,6-Trichlorophenol	1.2	"	<6.0
Surrogate Recoveries		%	
d5-Phenol			NR
d5-Nitrobenzene			76
2-Fluorobiphenyl			79
2,4,6-Tribromophenol			75
d-14-p-Terphenyl			108
Hexachloroethane	2.0	ug/L	<10
Hexachlorobutadiene	2.0	"	<10
Hexachlorobenzene	2.0	"	<10

	Client ID:		VVT-2597	VVT-2597	VVT-2597	VVT-2597	VVT-2597
	Zenon ID:		003594 97	003594 97	003594 97	003594 97	003594 97
	Date Sampled:		97/02/05	97/02/05	97/02/05	97/02/05	97/02/05
Component	**MDL**	**Units**	Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
pH (20 DEG C)			-	-	-	-	-
Sulphide ***via SW846 9030***	0.20	mg/L	-	-	-	-	-
Cyanide ***via SW846 Method 9010***	0.010	mg/L	<	0.025	35	0.026	36
Mercury ***via SW846 Method 7470***	0.05	ug/L	-	-	-	-	-
TCLP Metals ***via SW846 Method 6010***							
Arsenic	0.020	mg/L	0.020	0.58	100	-	-
Barium	0.001	"	0.14	1.1	87	-	-
Cadmium	0.002	"	<	0.61	110	-	-
Chromium	0.004	"	0.020	1.2	110	-	-
Lead	0.020	"	<	1.2	110	-	-
Selenium	0.060	"	<0.066	0.67	130	-	-
Silver	0.010	"	<0.011	0.70	130	-	-
Flash Point ***via SW846 Method 1010***	0.1	C	-	-	-	-	-
TCLP Volatiles ***via SW846 Method 8260***							
Benzene	0.2	ug/L	-	-	-	-	-
2-Butanone	5.0	"	-	-	-	-	-
Carbon Tetrachloride	0.3	"	-	-	-	-	-
Chlorobenzene	0.6	"	-	-	-	-	-
Chloroform	0.4	"	-	-	-	-	-
1,2-Dichloroethane	0.4	"	-	-	-	-	-
1,1-Dichloroethene	0.4	"	-	-	-	-	-
Pyridine	250	"	-	-	-	-	-
Tetrachloroethene	0.2	"	-	-	-	-	-
Trichloroethene	0.3	"	-	-	-	-	-
Vinyl Chloride	2.9	"	-	-	-	-	-
1,4-Dichlorobenzene	0.2	"	-	-	-	-	-
Surrogate Recoveries		%					
d4-1,2-Dichloroethane			-	-	-	-	-
d8-Toluene			-	-	-	-	-
1,4-Bromofluorobenzene			-	-	-	-	-

	Client ID:		VVT-2597	VVT-2597	VVT-2597	VVT-2597	VVT-2597
	Zenon ID:		003594 97	003594 97	003594 97	003594 97	003594 97
	Date Sampled:		97/02/05	97/02/05	97/02/05	97/02/05	97/02/05
Component	**MDL**	**Units**	Duplicate	M. Spike	MS % Rec.	MS Dup	MSD % Rec.
TCLP Semi-Volatiles *via SW846 Method 8270*							
o-Cresol	1.7	ug/L	-	-	-	-	-
m&p-Cresol	3.5	"	-	-	-	-	-
1,4-Dichlorobenzene	2.0	"	-	-	-	-	-
2,4-Dinitrotoluene	0.5	"	-	-	-	-	-
Nitrobenzene	2.0	"	-	-	-	-	-
Pentachlorophenol	1.1	"	-	-	-	-	-
2,4,5-Trichlorophenol	0.6	"	-	-	-	-	-
2,4,6-Trichlorophenol	1.2	"	-	-	-	-	-
Surrogate Recoveries		%					
d5-Phenol			-	-	-	-	-
d5-Nitrobenzene			-	-	-	-	-
2-Fluorobiphenyl			-	-	-	-	-
2,4,6-Tribromophenol			-	-	-	-	-
d-14-p-Terphenyl			-	-	-	-	-
Hexachloroethane	2.0	ug/L	-	-	-	-	-
Hexachlorobutadiene	2.0	"	-	-	-	-	-
Hexachlorobenzene	2.0	"	-	-	-	-	-

	Client ID:		Method Blank	Blank Spike#1	Blank Spike#1	Blank Spike#2
	Zenon ID:		003593 97	003593 97	003593 97	003593 97
	Date Sampled:		97/02/05	97/02/05	97/02/05	97/02/05
Component	**MDL**	**Units**			% recoveries	
pH (20 DEG C)			-	-	-	-
Sulphide ***via SW846 9030***	0.20	mg/L	<	-	-	-
Cyanide ***via SW846 Method 9010***	0.010	mg/L	<	0.049	98	-
Mercury ***via SW846 Method 7470***	0.05	ug/L	<	1.0	100	-
TCLP Metals ***via SW846 Method 6010***						
Arsenic	0.020	mg/L	<0.55	<0.55	97	-
Barium	0.001	"	<	1.1	100	-
Cadmium	0.002	"	<	0.56	100	-
Chromium	0.004	"	<	1.2	110	-
Lead	0.020	"	<	1.2	110	-
Selenium	0.060	"	<0.066	0.56	100	-
Silver	0.010	"	<0.011	0.58	110	-
Flash Point ***via SW846 Method 1010***	0.1	C	-	-	-	-
TCLP Volatiles ***via SW846 Method 8260***						
Benzene	0.2	ug/L	<	-	-	-
2-Butanone	5.0	"	<	-	-	-
Carbon Tetrachloride	0.3	"	<	-	-	-
Chlorobenzene	0.6	"	<	-	-	-
Chloroform	0.4	"	<	-	-	-
1,2-Dichloroethane	0.4	"	<	-	-	-
1,1-Dichloroethene	0.4	"	<	-	-	-
Pyridine	250	"	<	-	-	-
Tetrachloroethene	0.2	"	<	-	-	-
Trichloroethene	0.3	"	<	-	-	-
Vinyl Chloride	2.9	"	<	-	-	-
1,4-Dichlorobenzene	0.2	"	0.7	-	-	-
Surrogate Recoveries		%				
d4-1,2-Dichloroethane			92	-	-	-
d8-Toluene			96	-	-	-
1,4-Bromofluorobenzene			88	-	-	-

			Method Blank	Blank Spike#1	Blank Spike#1	Blank Spike#2
	Client ID:					
	Zenon ID:		003593 97	003593 97	003593 97	003593 97
	Date Sampled:		97/02/05	97/02/05	97/02/05	97/02/05
Component	**MDL**	**Units**			% recoveries	
TCLP Semi-Volatiles ***via SW846 Method 8270***						
o-Cresol	1.7	ug/L	<	NS	-	NS
m&p-Cresol	3.5	"	<	31	61	32
1,4-Dichlorobenzene	2.0	"	<	30	61	31
2,4-Dinitrotoluene	0.5	"	<	48	96	49
Nitrobenzene	2.0	"	<	38	75	38
Pentachlorophenol	1.1	"	<	68	140	66
2,4,5-Trichlorophenol	0.6	"	<	NS	-	NS
2,4,6-Trichlorophenol	1.2	"	<	41	81	41
Surrogate Recoveries		%				
d5-Phenol			66	53	53	54
d5-Nitrobenzene			85	77	77	77
2-Fluorobiphenyl			83	77	77	77
2,4,6-Tribromophenol			96	90	90	91
d-14-p-Terphenyl			110	96	96	97
Hexachloroethane	2.0	ug/L	<	25	49	25
Hexachlorobutadiene	2.0	"	<	29	58	30
Hexachlorobenzene	2.0	"	<	50	100	47

			Blank
	Client ID:		Spike#2
	Zenon ID:		003593 97
	Date Sampled:		97/02/05
Component	**MDL**	**Units**	% recoveries
pH (20 DEG C)			-
Sulphide ***via SW846 9030***	0.20	mg/L	-
Cyanide ***via SW846 Method 9010***	0.010	mg/L	-
Mercury ***via SW846 Method 7470***	0.05	ug/L	-
TCLP Metals ***via SW846 Method 6010***			
Arsenic	0.020	mg/L	-
Barium	0.001	"	-
Cadmium	0.002	"	-
Chromium	0.004	"	-
Lead	0.020	"	-
Selenium	0.060	"	-
Silver	0.010	"	-
Flash Point ***via SW846 Method 1010***	0.1	C	-
TCLP Volatiles ***via SW846 Method 8260***			
Benzene	0.2	ug/L	-
2-Butanone	5.0	"	-
Carbon Tetrachloride	0.3	"	-
Chlorobenzene	0.6	"	-
Chloroform	0.4	"	-
1,2-Dichloroethane	0.4	"	-
1,1-Dichloroethene	0.4	"	-
Pyridine	250	"	-
Tetrachloroethene	0.2	"	-
Trichloroethene	0.3	"	-
Vinyl Chloride	2.9	"	-
1,4-Dichlorobenzene	0.2	"	-
Surrogate Recoveries		%	
d4-1,2-Dichloroethane			-
d8-Toluene			-
1,4-Bromofluorobenzene			-

			Blank
	Client ID:		Spike#2
	Zenon ID:		003593 97
	Date Sampled:		97/02/05
Component	**MDL**	**Units**	% recoveries
TCLP Semi-Volatiles ***via SW846 Method 8270***			
o-Cresol	1.7	ug/L	-
m&p-Cresol	3.5	"	63
1,4-Dichlorobenzene	2.0	"	62
2,4-Dinitrotoluene	0.5	"	97
Nitrobenzene	2.0	"	76
Pentachlorophenol	1.1	"	130
2,4,5-Trichlorophenol	0.6	"	-
2,4,6-Trichlorophenol	1.2	"	83
Surrogate Recoveries		%	
d5-Phenol			54
d5-Nitrobenzene			77
2-Fluorobiphenyl			77
2,4,6-Tribromophenol			91
d-14-p-Terphenyl			9.0
Hexachloroethane	2.0	ug/L	49
Hexachlorobutadiene	2.0	"	59
Hexachlorobenzene	2.0	"	95

Batch Code:	**0207JMA1**
pH (20 DEG C) .	003594 97
Date analysed:	97/02/07
Date prepared:	97/02/07
Batch Code:	**0212JMA1**
e Sulphide .	003593 97
	003594 97
Date analysed:	97/02/12
Date prepared:	97/02/12
Batch Code:	**0207RJA1**
Cyanide total .	003593 97
	003594 97
Date analysed:	97/02/07
Date prepared:	97/02/07
Batch Code:	**0210ASA1**
Mercury .	003593 97
	003594 97
Date analysed:	97/02/10
Date prepared:	97/02/10
Batch Code:	**0211ASD1**
Arsenic .	003593 97
	003594 97
Date analysed:	97/02/12
Date prepared:	97/02/11
Batch Code:	**0207SPA1**
Flash Point .	003594 97
Date analysed:	97/02/07
Date prepared:	97/02/07
Batch Code:	**0212SM02**
Volatiles	003593 97
	003594 97
Date analysed:	97/02/12
Date prepared:	97/02/12
Batch Code:	**0210KS01**
Semi Volatiles	003593 97
	003594 97
Date analysed:	97/02/14
Date prepared:	97/02/10

MBW-3593

PHILIP ENVIRONMENTAL

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 3042

Project Name: BR Val Verde TANK
Project Number: Phase . Task
Samplers: K. Padilla
Laboratory: Name: Enviro
Location:

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: TCLP (VOL-8)	TCLP (BNA-8)	Ignitability	Corrosivity pH	Reactivity	TCLP Sulphide	Hg						Comments
VVT-2597	2-5-97	10:35	Water	2	X	X	X	X		-	3594						*Dont do PEST & HERB on TCLP

Relinquished by:

Signature	Date	Time
Kelly Padilla	2-5-97	10:35

Received By:

Signature	Date	Time
[signature]	970206	1:15 pm

Samples Iced: ☑ Yes ☐ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: FedEx

Airbill No. 748787383

Shipping and Lab Notes: Fax results to Cory Chance

✓

-176 4/95

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
MAR 15 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator Giant Refining
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Cooling Towers
2. Management Facility Destination Key Energy Disposal	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 Aztec NM MAIL: PO Box 900 Farmington 87499	8. State NM
7. Location of Material (Street Address or ULSTR) #50 CR 4990 Bloomfield NM 87413	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Non-Process Contact Cooling Tower Waste

MAR 2000
RECEIVED
OIL CON. DIV
DIST. 3

Estimated Volume 400-500 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: _____ TITLE: Mgr DATE: 3-9-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: Michael Talovich TELEPHONE NO: 505-334-6186

(This space for State Use)

APPROVED BY: Denny G. Foust TITLE: Geologist DATE: 3/10/2000

APPROVED BY: _____ TITLE: Environmental Geologist DATE: 3/15/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Giant Refining Company # 50 CR 4990 Bloomfield, NM 87413	Key Energy Disposal Crouch Mesa Facility
3. Originating Site (name):	**Location of the Waste (Street address &/or ULSTR):**
Giant Refining Company # 50 CR 4990 Bloomfield, NM 87413 **Attach list of originating sites as appropriate**	SAME
4. Source and Description of Waste	
Non-Process Contact Cooling Tower Water and Scale 400 to 500 Barrels of Non-Contact Cooling Tower water	

I, Barry Holman representative for:
(Print Name)
Giant Refining Company do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

___ **EXEMPT** oilfield waste

XX **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

___ MSDS Information
___ RCRA Hazardous Waste Analysis
___ Chain of Custody
XX Other (description): NORM Analysis Attached

Name (Original Signature): Barry Holman

Title: Environmental Manager

Date: March 9, 2000

Process Equipment & Service Company, Inc.

5680 U.S. HIGHWAY 64 • 87401 / P.O. BOX 929 • 87499
FARMINGTON, NEW MEXICO
PHONE: (505) 327-2222 • FAX: (505) 327-7550

NORM SURVEY DATA SHEET

Facility / location: Giant Refining Date: 3-9-00

Meter Model: DOSIMETER 3007A Serial No: 9808-238

Detector Model: DOSIMETER 3012 Serial No: 201-887-7100

Calibration Date: 4-5-99

Battery Check: (X)

Background Radiation Level: 0.04 mR/hr

Description of material surveyed:
Cooling Tower Scale & Water

Item / Material Surveyed:

Waste Material: 400 approx. ~~gals~~ Bbl
Equipment: mR/hr: 0.04

Manufacturer: _____

Serial No: _____

Description: _____

Job No: _____

Comments:

Survey Conducted by: Gary W Howe
(Print Name)

Gary W Howe
(Signature)

Martyne Kieling

GIANT
REFINING COMPANY

To : Barry Holman
From : Tony Tristano
Date : March 13, 2000
Subject : Cooling tower water pH

Barry,

The pH of the cooling tower water is continuously monitored and automatically controlled at 7.3. Once or twice a week I check the calibration of the on line probe and make the necessary adjustments. Over the course of the last month the pH probe has been right on target and not required any adjustment. Please feel free to call me if you have any further questions concerning the cooling tower water or the treatment program.

Tony Tristano

Tony Tristano
Blender / Treatment Engineer

PHONE
505-632-8013
FAX
505-632-3911

50 ROAD 4990
P.O. BOX 159
BLOOMFIELD
NEW MEXICO
87413

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT: TRASAR 23268 COOLING WTR TRMT

EMERGENCY TELEPHONE NUMBER:
MEDICAL (800) 462-5378 (24 HOURS)
(800) I-M-ALERT

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: TRASAR 23268 COOLING WTR TRMT

DESCRIPTION:
AN AQUEOUS SOLUTION OF A SUBSTITUTED TRIAZOLE AND AN ACRYLIC POLYMER with a tracer

NFPA 704M/HMIS RATING:
1/2 HEALTH
1/1 FLAMMABILITY
0/0 REACTIVITY
0 OTHER

0=INSIGNIFICANT 1=SLIGHT 2=MODERATE 3=HIGH 4=EXTREME

SECTION 2 HAZARDOUS INGREDIENTS

OUR HAZARD EVALUATION HAS IDENTIFIED THE FOLLOWING CHEMICAL INGREDIENT(S) AS HAZARDOUS UNDER OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200. CONSULT SECTION 14 FOR THE NATURE OF THE HAZARD(S).

INGREDIENT(S)	CAS #	APPROX.%
SODIUM TOLYLTRIAZOLE	64665-57-2	1-5

SECTION 3 PRECAUTIONARY LABEL INFORMATION

WARNING:
CAUSES IRRITATION TO SKIN AND EYES. DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. WEAR GOGGLES AND FACE SHIELD WHEN HANDLING. DO NOT TAKE INTERNALLY.

EMPTY CONTAINERS MAY CONTAIN RESIDUAL PRODUCT. DO NOT REUSE CONTAINER UNLESS PROPERLY RECONDITIONED.

SECTION 4 FIRST AID INFORMATION

EYES:
IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS OPEN. CALL A PHYSICIAN AT ONCE.

SKIN: FLUSH WITH WATER FOR 15 MINUTES.

INGESTION: DO NOT INDUCE VOMITING. GIVE WATER. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. TREAT SYMPTOMS. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
BASED ON THE INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITION.

CAUTION:
IF UNCONSCIOUS, HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: EYE, SKIN

EYE CONTACT: CAN CAUSE MODERATE IRRITATION.

SKIN CONTACT: CAN CAUSE MILD, SHORT-LASTING IRRITATION.

SYMPTOMS OF EXPOSURE:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY SYMPTOMS FROM EXPOSURE NOT PREVIOUSLY MENTIONED.

AGGRAVATION OF EXISTING CONDITIONS:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY WORSENING OF EXISTING CONDITIONS.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES:
ACUTE TOXICITY STUDIES HAVE NOT BEEN CONDUCTED ON THIS PRODUCT, BUT ACUTE STUDIES HAVE BEEN CONDUCTED ON A SIMILAR PRODUCT. THE RESULTS ARE SHOWN BELOW.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = GREATER THAN 5,000 MG/KG

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):
SKIN IRRITATION INDEX DRAIZE RATING: 1.28/8.0 SLIGHTLY IRRITATING

COMMENTS:
SWELLING DISAPPEARED AFTER 24 HOURS AND THE REDNESS DISAPPEARED TWO WEEKS AFTER EXPOSURE.

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):
EYE IRRITATION INDEX DRAIZE RATING: 23.0/110.0 MODERATELY IRRITATING

COMMENTS:
AFTER ONE HOUR CONTACT REDNESS, SWELLING AND DISCHARGE OCCURRED. AFTER 24 HOURS THERE WAS SLIGHT CORNEAL OPACITY WHICH DISAPPEARED AFTER FOUR DAYS AT WHICH TIME ALL EYES WERE NORMAL.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR:	CLEAR YELLOW	
FORM:	LIQUID	
DENSITY:	9.3 LBS/GAL.	
SOLUBILITY IN WATER:	COMPLETELY	
SPECIFIC GRAVITY:	1.11 @ 77 DEGREES F	ASTM D-1298
PH (NEAT) =	PH (AT 1%) = 11.4	ASTM E-70
VISCOSITY:	7 CPS @ 74 DEGREES F	ASTM D-2983
FREEZE POINT:	25 DEGREES F	ASTM D-1177
BOILING POINT:	not given	ASTM D-86
FLASH POINT:	NONE (PMCC)	ASTM D-93

NOTE: THESE PHYSICAL PROPERTIES ARE TYPICAL VALUES FOR THIS PRODUCT.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: NONE (PMCC) ASTM D-93

EXTINGUISHING MEDIA:
THIS PRODUCT WOULD NOT BE EXPECTED TO BURN UNLESS ALL THE WATER IS BOILED AWAY. THE REMAINING ORGANICS MAY BE IGNITABLE. USE WATER TO COOL CONTAINERS EXPOSED TO FIRE.

UNUSUAL FIRE AND EXPLOSION HAZARD: MAY EVOLVE NOx OR SOx UNDER FIRE CONDITIONS.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: NONE KNOWN

THERMAL DECOMPOSITION PRODUCTS:
IN THE EVENT OF COMBUSTION NOx, SOx MAY BE FORMED. DO NOT BREATHE SMOKE OR FUMES. WEAR SUITABLE PROTECTIVE EQUIPMENT.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION:
RESPIRATORY PROTECTION IS NOT NORMALLY NEEDED SINCE THE VOLATILITY AND TOXICITY ARE LOW. IF SIGNIFICANT MISTS OR AEROSOLS ARE GENERATED, WEAR A NIOSH APPROVED OR EQUIVALENT RESPIRATOR.

FOR LARGE SPILLS, ENTRY INTO LARGE TANKS, VESSELS OR ENCLOSED SMALL SPACES WITH INADEQUATE VENTILATION, A POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

VENTILATION: GENERAL VENTILATION IS RECOMMENDED.

PROTECTIVE EQUIPMENT:
USE IMPERMEABLE GLOVES AND CHEMICAL SPLASH GOGGLES WHEN ATTACHING FEEDING EQUIPMENT, DOING MAINTENANCE OR HANDLING PRODUCT. EXAMPLES OF IMPERMEABLE GLOVES AVAILABLE ON THE MARKET ARE NEOPRENE, NITRILE, PVC, NATURAL RUBBER, VITON AND BUTYL (COMPATIBILITY STUDIES HAVE NOT BEEN PERFORMED).

THE AVAILABILITY OF AN EYE WASH FOUNTAIN AND SAFETY SHOWER IS RECOMMENDED.

IF CLOTHING IS CONTAMINATED, REMOVE CLOTHING AND THOROUGHLY WASH THE AFFECTED AREA. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (800) I-M-ALERT OR (800)462-5378.

SPILL CONTROL AND RECOVERY:

SMALL LIQUID SPILLS:
CONTAIN WITH ABSORBENT MATERIAL, SUCH AS CLAY, SOIL OR ANY COMMERCIALLY AVAILABLE ABSORBENT. SHOVEL RECLAIMED LIQUID AND ABSORBENT INTO RECOVERY OR SALVAGE DRUMS FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

LARGE LIQUID SPILLS:
DIKE TO PREVENT FURTHER MOVEMENT AND RECLAIM INTO RECOVERY OR SALVAGE DRUMS OR TANK TRUCK FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

DISPOSAL:
IF THIS PRODUCT BECOMES A WASTE, IT MEETS THE CRITERIA OF A HAZARDOUS WASTE AS DEFINED UNDER THE RESOURCES CONSERVATION AND RECOVERY ACT (RCRA) 40 CFR 261. HAZARDOUS WASTE D002.

AS A HAZARDOUS LIQUID WASTE, IT MUST BE SOLIDIFIED WITH STABILIZING AGENTS (SUCH AS SAND, FLY ASH, OR CEMENT) SO THAT NO FREE LIQUID REMAINS BEFORE DISPOSAL TO A LICENSED INDUSTRIAL WASTE LANDFILL (HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY). A HAZARDOUS LIQUID WASTE CAN ALSO BE DEEP-WELL INJECTED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION 12 ENVIRONMENTAL INFORMATION

BIOLOGICAL OXYGEN DEMAND (5-DAY BOD): 6,600 PPM

CHEMICAL OXYGEN DEMAND (COD): 260,000 PPM

TOTAL ORGANIC CARBON (TOC): 85,000

AQUATIC DATA:

RESULTS BELOW ARE BASED ON THE PRODUCT.

96 HOUR STATIC ACUTE LC50 TO FATHEAD MINNOW = 418 MG/L

TOXICITY RATING: SLIGHTLY TOXIC

48 HOUR STATIC ACUTE LC50 TO CERIODEPHNIA DUBIA = 1,581 MG/L

TOXICITY RATING: ESSENTIALLY NON-TOXIC

RESULTS BELOW BASED ON A SIMILAR PRODUCT.

96 HOUR STATIC ACUTE LC50 TO BLUEGILL SUNFISH = GREATER THAN 1,000 MG/L

96 HOUR NO OBSERVED EFFECT CONCENTRATION IS 1,000 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: ESSENTIALLY NON-TOXIC

96 HOUR STATIC ACUTE LC50 TO RAINBOW TROUT = 710 MG/L

96 HOUR NO OBSERVED EFFECT CONCENTRATION IS 125 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: SLIGHTLY TOXIC

48 HOUR STATIC ACUTE LC50 TO DAPHNIA MAGNA = GREATER THAN 1,000 MG/L

48 HOUR NO OBSERVED EFFECT CONCENTRATION IS 1,000 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: ESSENTIALLY NON-TOXIC

IF RELEASED INTO THE ENVIRONMENT, SEE CERCLA IN SECTION 14.

SECTION 13 TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES:	CORROSIVE LIQUID, N.O.S.
UN/ID NO:	UN 3267
HAZARD CLASS - PRIMARY:	8 - CORROSIVE
PACKING GROUP:	III
IMDG PAGE NO:	8147-1
IATA PACKING INSTRUCTION:	CARGO: 820
IATA CARGO AIRCRAFT LIMIT:	60 L (MAX NET QUANTITY PER PACKAGE)
FLASH POINT:	NONE
HAZARDOUS COMPONENT(S):	SODIUM TOLYLTRIAZOLE
RQ LBS (PER PACKAGE):	NONE
RQ COMPONENT(S)	NONE

SECTION 14 REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT.

FEDERAL REGULATIONS:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
BASED ON OUR HAZARD EVALUATION, THE FOLLOWING INGREDIENT IN THIS PRODUCT IS HAZARDOUS AND THE REASON IS SHOWN BELOW.

SODIUM TOLYLTRIAZOLE - EYE IRRITANT

CERCLA/SUPERFUND, 40 CFR 117, 302:
NOTIFICATION OF SPILLS OF THIS PRODUCT IS NOT REQUIRED.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED IN APPENDIX A AND B AS AN EXTREMELY HAZARDOUS SUBSTANCE.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
OUR HAZARD EVALUATION HAS FOUND THIS PRODUCT TO BE HAZARDOUS. THE PRODUCT SHOULD BE REPORTED UNDER THE FOLLOWING EPA HAZARD CATEGORIES:

XX IMMEDIATE (ACUTE) HEALTH HAZARD
-- DELAYED (CHRONIC) HEALTH HAZARD
-- FIRE HAZARD
-- SUDDEN RELEASE OF PRESSURE HAZARD

-- REACTIVE HAZARD

UNDER SARA 311 AND 312, THE EPA HAS ESTABLISHED THRESHOLD QUANTITIES FOR THE REPORTING OF HAZARDOUS CHEMICALS. THE CURRENT THRESHOLDS ARE: 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY (TPQ), WHICHEVER IS LOWER, FOR EXTREMELY HAZARDOUS SUBSTANCES AND 10,000 POUNDS FOR ALL OTHER HAZARDOUS CHEMICALS.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS ON THE LIST OF TOXIC CHEMICALS.

TOXIC SUBSTANCES CONTROL ACT (TSCA):
THE CHEMICAL INGREDIENTS IN THIS PRODUCT ARE ON THE 8(B) INVENTORY LIST (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
CONSULT SECTION 11 FOR RCRA CLASSIFICATION.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15/ FORMERLY SEC. 307, 40 CFR 116/FORMERLY SEC. 311:
THIS PRODUCT CONTAINS THE FOLLOWING INGREDIENTS COVERED BY THE CLEAN WATER ACT:
NONE OF THE INGREDIENTS ARE SPECIFICALLY LISTED.

CLEAN AIR ACT, SEC. 111 (40 CFR 60), SEC. 112 (40 CFR 61, 1990 AMENDMENTS), SEC. 611 (40 CFR 82, CLASS I AND II OZONE DEPLETING SUBSTANCES):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS COVERED BY THE CLEAN AIR ACT.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS WHICH REQUIRE WARNING UNDER CALIFORNIA PROPOSITION 65.

MICHIGAN CRITICAL MATERIALS:
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED ON THE MICHIGAN CRITICAL MATERIALS REGISTER:

STATE RIGHT TO KNOW LAWS:

THE FOLLOWING INGREDIENT(S) ARE DISCLOSED FOR COMPLIANCE WITH STATE RIGHT TO KNOW LAWS:

ACRYLIC POLYMER	TRADE SECRET
SODIUM TOLYLTRIAZOLE	64665-57-2
WATER	7732-18-5

INTERNATIONAL REGULATIONS:

THIS IS A WHMIS CONTROLLED PRODUCT UNDER THE HOUSE OF COMMONS OF CANADA BILL C-70 (CLASS D2B). THE PRODUCT CONTAINS THE FOLLOWING SUBSTANCE(S), FROM THE INGREDIENT DISCLOSURE LIST OR HAS BEEN EVALUATED BASED ON ITS TOXICOLOGICAL

PROPERTIES, TO CONTAIN THE FOLLOWING HAZARDOUS INGREDIENT(S):

CHEMICAL NAME	CAS #	% CONCENTRATION RANGE
SODIUM TOLYLTRIAZOLE	64665-57-2	1-5

SECTION 15 ADDITIONAL INFORMATION

NONE

SECTION 16 USER'S RESPONSIBILITY

THIS PRODUCT MATERIAL SAFETY DATA SHEET PROVIDES HEALTH AND SAFETY INFORMATION. THE PRODUCT IS TO BE USED IN APPLICATIONS CONSISTENT WITH OUR PRODUCT LITERATURE. INDIVIDUALS HANDLING THIS PRODUCT SHOULD BE INFORMED OF THE RECOMMENDED SAFETY PRECAUTIONS AND SHOULD HAVE ACCESS TO THIS INFORMATION. FOR ANY OTHER USES, EXPOSURES SHOULD BE EVALUATED SO THAT APPROPRIATE HANDLING PRACTICES AND TRAINING PROGRAMS CAN BE ESTABLISHED TO ENSURE SAFE WORKPLACE OPERATIONS. PLEASE CONSULT YOUR LOCAL SALES REPRESENTATIVE FOR ANY FURTHER INFORMATION.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, DOULL, J., KLAASSEN, C. D., AND ADMUR, M. O., EDS., MACMILLIAN PUBLISHING COMPANY, INC., N. Y., 2ND EDITION, 1980.

CHEMICAL HAZARDS OF THE WORKPLACE, PROCTOR, N. H., AND HUGHES, J. P., EDS., J. P. LIPINCOTT COMPANY, N.Y., 1981.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, SAX, N. IRVING, ED., VAN NOSTRAND REINHOLD COMPANY, N.Y., 6TH EDITION, 1984.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, GENEVA: WORLD HEALTH ORGANIZATION, INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, 1972-1977.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, CLAYTON, G. D., CLAYTON, F. E., EDS., JOHN WILEY AND SONS, N. Y., 3RD EDITION, VOL. 2 A-C, 1981.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, CENTER FOR DISEASE CONTROL, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, 1983 SUPPLEMENT OF 1981-1982 EDITION, VOL. 1-3, OH, 1984.

TITLE 29 CODE OF FEDERAL REGULATIONS PART 1910, SUBPART Z, TOXIC AND HAZARDOUS SUBSTANCES, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, OH.

PREPARED BY: William S. Utley, PHD., DABT, Manager, Product Safety
DATE CHANGED: 01/22/96 DATE PRINTED: 04/04/98

NALCO CHEMICAL COMPANY
ONE NALCO CENTER
NAPERVILLE, ILLINOIS 60563-1198
AREA 630-305-1000

REPORT NUMBER: 703
MSDS NO: DQ4950CR
EFFECTIVE DATE: 05/20/98
VERSION: 002
SULFURIC ACID, 77 TO 100%

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

ORDER NO: 101208
PROD NO : 361070

VAN WATERS & ROGERS, A ROYAL PAKHOED COMPANY (425) 889-3400
6100 CARILLON POINT, KIRKLAND, WA 98033

EMERGENCY ASSISTANCE

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800) 424-9300

FOR PRODUCT AND SALES INFORMATION

CONTACT YOUR LOCAL VAN WATERS & ROGERS., A ROYAL PAKHOED COMPANY (425)889-3400
6100 CARILLON POINT, KIRKLAND, WA 98033

PRODUCT IDENTIFICATION

PRODUCT NAME: SULFURIC ACID, 77 TO 100%
CAS NO.: 7664-93-9
FORMULA: H2SO4
MOLECULAR WEIGHT: 98.08
CAS NAME: SULFURIC ACID
GRADE: 77 TO 100% TECHNICAL

TRADENAMES AND SYNONYMS: SULFURIC ACID 66 BE

CHEMTREC: 1-800-424-9300

HAZARDOUS INGREDIENTS

COMPONENTS

MATERIAL	CAS NUMBER	%
SULFURIC ACID	7664-93-9	
60 DEG TECHNICAL		77.7
66 DEG TECHNICAL		93.2
1.835 ELECTROLYTE		93.2
98% TECHNICAL		98
99% TECHNICAL		99
100% TECHNICAL		100
WATER	7732-18-5	0-22

PHYSICAL PROPERTIES

BOILING POINT: 193-327 C (379-621 F) @ 760 MM HG
VAPOR PRESSURE: <0.3 MM HG @ 25 C (77 F)
<0.6 MM HG @ 38 C (100 F)
VAPOR DENSITY: 3.4

MELTING POINT: -35 TO 11 C (-31 TO 52 F)
EVAPORATION RATE: <1 (BUTYL ACETATE=1.0)
SOLUBILITY IN WATER: 100 WT%
PH: <1
ODOR: ODORLESS
FORM: OILY; CLEAR TO TURBID LIQUID
COLOR: COLORLESS TO LIGHT GRAY

GRADE	BOLING PT. DEG C	BOLING PT. DEG F	MELTING PT. DEG C	MELTING PT. DEG F	SPECIFIC GRAVITY
60 DEG TECHNICAL	193	380	-12	10	1.706
66 DEG TECHNICAL	279	535	-35	-31	1.835
1.835 ELECTROLYTE	279	535	-35	-31	1.835
98% TECHNICAL	327	621	-2	29	1.844
99% TECHNICAL	310	590	4	40	1.842
100% TECHNICAL	274	526	11	51	1.839

FIRST AID MEASURES

INHALATION:
IF INHALED, IMMEDIATELY REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. PLEASE NOTE: SYMPTOMS MAY BE DELAYED; PROMPT MEDICAL ATTENTION MY BE REQUIRED. CALL A PHYSICIAN.

SKIN CONTACT:
IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. WASH CONTAMINATED CLOTHING BEFORE REUSE.

WHILE THE PATIENT IS BEING TRANSPORTED TO A MEDICAL FACILITY, CONTINUE THE APPLICATION OF COLD, WET COMPRESSES. IF MEDICAL TREATMENT MUST BE DELAYED, REPEAT THE FLUSHING WITH COLD WATER OR SOAK THE AFFECTED AREA WITH COLD WATER TO HELP REMOVE THE LAST TRACES OF SULFURIC ACID. CREAMS OR OINTMENTS SHOULD NOT BE APPLIED BEFORE OR DURING THE WASHING PHASE OF TREATMENT.

EYE CONTACT:
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.

INGESTION:
IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE LARGE QUANTITY OF WATER. CALL A PHYSICIAN IMMEDIATELY. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIANS:
CONTINUED WASHING OF THE AFFECTED AREA WITH COLD OR ICED WATER WILL BE HELPFUL IN REMOVING THE LAST TRACES OF SULFURIC ACID. CREAMS OR OINTMENTS SHOULD NOT BE APPLIED BEFORE OR DURING THE WASHING PHASE OF THE TREATMENT.

HEALTH HAZARD INFORMATION

POTENTIAL HEALTH EFFECTS

INHALATION:
EXPOSURE TO MISTS MAY CAUSE: IRRITATION OF THE NOSE AND THROAT WITH SNEEZING, SORE THROAT OR RUNNY NOSE. NON-SPECIFIC EFFECTS SUCH AS HEADACHE, NAUSEA AND WEAKNESS. GROSS OVEREXPOSURE MAY CAUSE: IRRITATION OF NOSE, THROAT, AND LUNGS WITH COUGH, DIFFICULTY BREATHING OR SHORTNESS OF BREATH. PULMONARY EDEMA (BODY FLUID IN THE LUNGS) WITH COUGH, SNEEZING, ABNORMAL LUNG SOUNDS, POSSIBLY PROGRESSING TO SEVERE

SHORTNESS OF BREATH AND BLUISH DISCOLORATION OF THE SKIN; SYMPTOMS MAY BE DELAYED. REPEATED AND/OR PROLONGED EXPOSURE TO MISTS MAY CAUSE: CORROSION OF TEETH.

SKIN CONTACT:
CONTACT WITH LIQUID MAY CAUSE: SKIN CORROSION, BURNS OR ULCERS. CONTACT WITH A 1% SOLUTION MAY CAUSE--SLIGHT IRRITATION WITH ITCHING, REDNESS OR SWELLING. REPEATED AND/OR PROLONGED EXPOSURE TO MISTS MAY CAUSE: IRRITATION WITH ITCHING, BURNING REDNESS, SWELLING OR RASH.

EYE CONTACT:
CONTACT WITH LIQUID MAY CAUSE: EYE CORROSION OR ULCERATION -- BLINDNESS MAY RESULT. REPEATED AND/OR PROLONGED EXPOSURE TO MISTS MAY CAUSE: EYE IRRITATION WITH TEARING, PAIN OR BLURRED VISION.

INGESTION:
IMMEDIATE EFFECTS OF OVEREXPOSURE MAY INCLUDE: BURNS OR THE MOUTH, THROAT, ESOPHAGUS AND STOMACH, WITH SEVERE PAIN, BLEEDING, VOMITING, DIARRHEA AND COLLAPSE OF BLOOD PRESSURE - DAMAGE MAY APPEAR DAYS AFTER EXPOSURE.

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) CLASSIFIED "STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID" AS A CATEGORY 1 CARCINOGEN, A SUBSTANCE THAT IS "CARCINOGENIC TO HUMANS". THIS CLASSIFICATION IS FOR STRONG INORGANIC ACID MISTS ONLY AND DOES NOT APPLY TO SULFURIC ACID OR SULFURIC ACID SOLUTIONS. THE BASIS FOR THE IARC CLASSIFICATION RESTS ON SEVERAL EPIDEMIOLOGY STUDIES WHICH HAVE SEVERAL DEFICIENCIES. THESE STUDIES DID NOT ACCOUNT FOR EXPOSURE TO OTHER SUBSTANCES, SOME KNOWN TO BE ANIMAL OR POTENTIAL HUMAN CARCINOGENS, SOCIAL INFLUENCES (SMOKING, ETC.) AND INCLUDED SMALL NUMBERS OF SUBJECTS. BASED ON THE OVERALL WEIGHT OF EVIDENCE FROM ALL HUMAN AND CHRONIC ANIMAL STUDIES, NO DEFINITIVE CAUSAL RELATIONSHIP BETWEEN SULFURIC ACID MIST EXPOSURE AND RESPIRATORY TRACT TUMORS HAS BEEN SHOWN.

INCREASED SUSCEPTIBILITY TO THE EFFECTS OF THIS MATERIAL MAY BE OBSERVED IN PERSONS WITH PRE-EXISTING DISEASE OF THE: LUNGS.

CARCINOGENICITY INFORMATION:
NONE OF THE COMPONENTS PRESENT IN THIS MATERIAL AT CONCENTRATIONS EQUAL TO OR GREATER THAN 0.1% ARE LISTED BY IARC, NTP, OSHA OR ACGIH AS A CARCINOGEN.

TOXICITY DATA

TOXICOLOGICAL INFORMATION

ANIMAL DATA

EYE: ANIMAL TESTING INDICATES THIS MATERIAL IS CORROSIVE TO THE EYE, WHEN TESTED UNDILUTED. ANIMAL TESTING INDICATES THIS MATERIAL IS A MODERATE EYE IRRITANT, WHEN TESTED AS A 10% SOLUTION.

SKIN: THE CONCENTRATED COMPOUND IS CORROSIVE. ANIMAL TESTING INDICATES THIS MATERIAL IS A SLIGHT SKIN IRRITANT, WHEN TESTED AS 10% SOLUTION.

INGESTION: LD50, RAT: 2,140 MG/KG.

INHALATION: 8 HOUR, LC50, GUINEA PIGS: 30 MG/M3.
SINGLE AND REPEATED EXPOSURE CAUSED: IRRITATION OF THE RESPIRATORY TRACT. CORROSION OF THE RESPIRATORY TRACT. LUNG DAMAGE. LABORED BREATHING. ALTERTED RESPIRATORY RATE. PULMONARY EDEMA. REPEATED EXPOSURE CAUSED: ALTERED RED BLOOD CELL COUNT.

CARCINOGENIC, DEVELOPMENTAL, REPRODUCTIVE, MUTAGENIC EFFECTS:

NO ADEQUATE ANIMAL DATA ARE AVAILABLE TO DEFINE THE CARCINOGENIC POTENTIAL OF THIS MATERIAL. LIMITED STUDIES DO NOT SUGGEST EFFECTS. IN ANIMAL TESTING THIS MATERIAL HAS NOT CAUSED DEVELOPMENTAL TOXICITY. NO ANIMAL DATA ARE AVAILABLE TO DEFINE THE FOLLOWING EFFECTS OF THIS MATERIAL: REPRODUCTIVE TOXICITY. THIS MATERIAL HAS NOT PRODUCED GENETIC DAMAGE IN BACTERIAL CULTURES. IT HAS NOT BEEN TESTED FOR GENETIC TOXICITY IN MAMALIAN CELL CULTURES OR IN ANIMALS.

ECOLOGICAL INFORMATION SECTION

ECOTOXICOLOGICAL INFORMATION

AQUATIC TOXICITY:
SLIGHTLY TO MODERATELY TOXIC.
96 HOUR LC50 - BLUEGILL SUNFISH: 10.5 PPM.
48 HOUR TLM - FLOUNDER: 100-300 PPM.

PERSONAL PROTECTION

GOOD GENERAL VENTILATION SHOULD BE PROVIDED TO KEEP VAPOR AND MIST CONCENTRATIONS BELOW THE EXPOSURE LIMITS.

PERSONAL PROTECTIVE EQUIPMENT

HAVE AVAILABLE AND WEAR AS APPROPRIATE FOR EXPOSURE CONDITIONS WHEN HANDLING CONTAINERS OR OPERATING EQUIPMENT CONTAINING SULFURIC ACID: CHEMICAL SPLASH GOOGLES; FULL-LENGTH FACE SHIELD/CHEMICAL SPLASH GOGGLES COMBINATION; ACID-PROOF GAUNTLET GLOVES, APRON, AND BOOTS; LONG SLEEVE WOOL, ACRYLIC, OR POLYESTER CLOTHING; ACID PROOF SUIT AND HOOD; AND APPROPRIATE NIOSH RESPIRATORY PROTECTION. IN CASE OF EMERGENCY OR WHERE THERE IS A STRONG POSSIBILITY OF CONSIDERABLE EXPOSURE, WEAR A COMPLETE ACID SUIT WITH HOOD, BOOTS, AND GLOVES. IF ACID VAPOR OR MIST ARE PRESENT AND EXPOSURE LIMITS MAY BE EXCEEDED, WEAR APPROPRIATE NIOSH RESPIRATORY P PROTECTION.

EXPOSURE GUIDELINES

EXPOSURE LIMITS
SULFURIC ACID, 77 TO 100%
PEL (OSHA): 1 MG/M3, 8 HR. TWA
TLV (ACGIH): 1 MG/M3, 8 HR. TWA, A2
STEL 3 MG/M3, A2
A2 (SULFURIC ACID CONTAINED IN STRONG INORGANIC ACID MISTS)
AEL (VENDOR): 1 MG/M3, 8 & 12 HR. TWA
3 MG/M3, 15 MINUTE TWA

AEL IS VENDOR'S ACCEPTABLE EXPOSURE LIMIT. WHERE GOVERNMENTALLY IMPOSED OCCUPATIONAL EXPOSURE LIMITS WHICH ARE LOWER THAN THE AEL ARE IN EFFECT, SUCH LIMITS SHALL TAKE PRECEDENCE.

FIRE AND EXPLOSION INFORMATION

FIRE FIGHTING MEASURES
FLAMMABLE PROPERTIES

WILL NOT BURN

FIRE AND EXPLOSION HAZARDS:
REACTS WITH MOST METALS, ESPECIALLY WHEN DILUTE, TO GIVE FLAMMABLE, POTENTIALLY EXPLOSIVE HYDROGEN GAS. FOLLOW APROPRIATE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES.

EXTINGUISHING MEDIA
USE MEDIA APPROPRITE FOR SURROUNDING MATERIAL.

USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE; DO NOT GET WATER INSIDE CONTAINERS.

FIRE FIGHTING INSTRUCTIONS:

EVACUATE PERSONNEL TO A SAFE AREA. KEEP PERSONNEL REMOVED AND UPWIND OF FIRE. GENERAT HEAT UPON ADDITION OF WATER, WITH POSSIBLE SPATTERING. WEAR FULL PROTECTIVE CLOTHING. RUNOFF FROM FIRE CONTROL MAY CAUSE POLLUTION. NEUTRALIZE RUNOFF WITH LIME, SODA ASH, ETC., TO PREVENT CORROSION OF METALS AND FORMATION OF HYDROGEN GAS. WEAR SELF-CONTAINED BREATHING APPARATUS IF FUMES OR MISTS ARE PRESENT.

HAZARDOUS REACTIVITY

CHEMICAL STABILITY:
STABLE, BUT REACTS VIOLENTLY WITH WATER AND ORGANIC MATERIALS WITH EVOLUTION OF HEAT.

INCOMPATIBILITY WITH OTHER MATERIALS:
VIGOROUS REACTIONS WITH WATER; ALKALINE SOLUTIONS; METALS, METAL POWDER; CARBIDES; CHLORATES; FUMINATES; NITRATES; PICRATES; STRONG OXIDIZING, REDUCING, OR COMBUSTIBLE ORGANIC MATERIALS. HAZARDOUS GASES ARE EVOLVED ON CONTACT WITH CHEMICALS SUCH AS CYANIDES, SULFIDES, AND CARBIDES.

DECOMPOSITON:
RELEASES SULFUR DIOXIDE AT EXTREMELY HIGH TEMPERATURES.

POLYMERIZATION
POLYMERIZATION WILL NOT OCCUR.

SPILL, LEAK, AND DISPOSAL PROCEDURES

ACCIDENTAL RELEASE MEASURES
SAFEGUARDS (PERSONNEL)

NOTE: REVIEW FIRE FIGHTING MEASURES AND HANDLING (PERSONNEL) SECTIONS BEFORE PROCEEDING WITH CLEAN-UP. USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT DURING CLEAN-UP.

ACCIDENTAL RELEASE MEASURES:

STOP FOW IF POSSIBLE. REVIEW "FIRE AND EXPLOSION HAZARDS" AND "SAFETY PRECAUTIONS" BEFORE PROCEEDING WITH CLEAN UP. USE APPROPRIATE PROTECTIVE EQUIPMENT DURING CLEAN-UP. SOAK UP SMALL SPILLS WITH DRY SAND, CLAY OR DIATOMACEOUS EARTH DIKE LARGE SPILLS, AND CAUTIOUSLY DILUTE AND NEUTRALIZE WITH LIME OR SODA ASH, AND TRANSFER TO WASTE WATER TREATMENT SYSTEM. PREVENT LIQUID FROM ENTERING SEWERS, WATERWAYS, OR LOW AREAS.

IF THIS PRODUCT IS SPILLED AND NOT RECOVERED, OR IS RECOVERED AS A WASTE FOR TREAT-MENT OR DISPOSAL, THE REPORTABLE QUANTITY IS 1,000 LBS. (BASED ON THE SULFURIC ACID

CONTENT OF THE SOLUTION SPILLED). COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES.

DUPONT EMERGENCY EXPOSURE LIMITS (EEL) ARE ESTABLISHED TO FACILITATE SITE OR PLANT EMERGENCY EVACUATION AND SPECIFY AIRBORNE CONCENTRATIONS OF BRIEF DURATIONS WHICH SHOULD NOT RESULT IN PERMANENT ADVERSE HEALTH EFFECTS OR INTERFERE WITH ESCAPE. EEL'S ARE EXPRESSED AS AIRBORNE CONCENTRATION MULTIPLIED BY TIME (CXT) FOR UP TO A MAXIMUM OF 60 MINUTES AND AS A CEILING AIRBORNE CONCENTRATION. THESE LIMITS ARE USED IN CONJUNCTION WITH ENGINEERING CONTROLS/MONITORING AND AS AN AID IN PLANNING FOR EPISODIC RELEASES AND SPILLS. FOR MOR INFORMATION ON THE APPLICABILITY OF EEL'S CONTACT DUPONT.

THE VENDOR EMERGENCY EXPOSURE LIMIT (EEL) FOR SULFURIC ACID IS 10 MG/M3 FOR 15 TO 60 MINUTES AND 20 MG/M3 FOR UP TO 15 MINUTES WITH A NOT-TO-EXCEED CEILING OF 20 MG/M3

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
CLEANED-UP MATERIAL MY BE AN RCRA HAZARDOUS WASTE ON DISPOSAL DUE TO THE CORROSIVITY CHARACTERISTIC. DO NOT FLUSH TO SURFACE WATER OR SANITARY SEWER SYSTEM. COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS. IF APPROVED, NEUTRALIZE AND TRANSFER TO WASTE TREATMENT SYSTEM.

SPECIAL PRECAUTIONS

HANDLING AND STORAGE
HANDLING (PERSONNEL)

DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. AVOID BREATHING VAPORS OR MIST. WASH THOROUGHLY AFTER HANDLING.
KEEP CONTAINERS CLOSED. DO NOT ADD WATER TO CONTENTS WHILE IN CONTAINER BECAUSE OF VIOLENT REACTION.

STORAGE:
KEEP OUT OF SUN AND AWAY FRO HEAT, SPARKS, AND FLAME. KEEP CONTAINER TIGHTLY CLOSED AND (DRUM) CLOSURE UP TO PREVENT LEAKAGE. LOOSEN CLOSURE CAREFULLY. RELIEVE INTERNAL PRESSURE WHEN RECEIVED AND AT LEAST WEEKLY THEREAFTER. DO NOT USE PRESSURE TO EMPTY. BE SURE CLOSURE IS SECURELY FASTENED BEFORE MOVING CONTAINER. DO NOT WASH OUR CONTAINER OR USE IT FOR OTHER PURPOSES; REPLACE CLOSURE AFTER EACH WITHDRAWAL AND RETURN IT WITH EMPTY CONTAINER.

TRANSPORTATION INFORMATION
SHIPPING INFORMATION:

DOT/IMO
PROPER SHIPPING NAME: SULFURIC ACID
HAZARD CLASS: 8
UN NO.: 1830
DOT/IMO LABEL: CORROSIVE
PACKING GROUP: II

REPORTABLE QUANTITY: 1000 LB (454 KG)

SHIPPING CONTAINERS TANK CARS
TANK TRUCKS
BARGE

OTHER INFORMATION:

NFPA, NPCA-;HMIS WATER REACTIVE.

NFPA RATING	NPCA-HMIS RATING
HEALTH: 3	HEALTH: 3
FLAMMABILITY: 0	FLAMMABILITY: 0
REACTIVITY: 2	REACTIVITY: 2

PERSONAL PROTECTION RATING TO BE SUPPLIED BY USER DEPENDING ON USE CONDITIONS.

ADDITIONAL INFORMATION:
BECAUSE OF ITS CORROSIVE CHARACTERISTICS AND INHERENT HAZARDS, SULFURIC ACID SHOULD NOT BE USED IN SEWER OR DRAIN CLEANERS OR ANY SIMILAR APPLICATION; REGARDLESS OF WHETHER THEY ARE FORMULATED FOR RESIDENTIAL, COMMERCIAL OR INDUSTRIAL USE. VENDOR WILL NOT KNOWINGLY SELL SULFURIC ACID TO INDIVIDUALS OR COMPANIES WHO REPACKAGE THE PRODUCT FOR SALE AS SEWER OR DRAIN CLEANERS, OR ANY OTHER SIMILAR USE.

OTHER REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS
TSCA INVENTORY STATUS: REPORTED/INCLUDED.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

ACUTE: YES
CHRONIC: YES
FIRE: NO
REACTIVITY: YES
PRESSURE: NO

HAZARDOUS CHEMICAL LISTS

SARA EXTREMELY HAZARDOUS SUBSTANCE: YES
CERCLA HAZARDOUS SUBSTANCE: YES
SARA TOXIC CHEMICAL: NO

REVISION

FOR ADDITIONAL INFORMATION

CONTACT: MSDS COORDINATOR VAN WATERS & ROGERS INC.
DURING BUSINESS HOURS, PACIFIC TIME (425) 889-3400

06/22/98 09:11 PRODUCT: 3161070 CUST NO: 402959 ORDER NO: 101208

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END OF MSDS

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
FORM APPROVED OMB NO. 44-R1387

MATERIAL SAFETY DATA SHEET

REQUIRED UNDER USDL SAFETY AND HEALTH REGULATIONS FOR SHIP REPAIRING, SHIPBUILDING, AND SHIPBREAKING (29 CFR 1915, 1916, 1917)

SECTION I

PRODUCT NAME: CHLORINE
PRODUCT ID: 25468
SYNONYMS: Cl2
DATE: 4/29/1998
EDITION NO.: 018

PPG INDUSTRIES, INC.
ONE PPG PLACE, PITTSBURGH, PA 15272, USA

24 HOUR EMERGENCY TELEPHONE NUMBER: 1-304-843-1300

FOR PRODUCT INFORMATION(8am-5pm Eastern time): 1-800-243-6774(C/A)
PREPARER: R. KENNETH LEE, MANAGER, PRODUCT SAFETY

SECTION II - COMPOSITION /INFORMATION ON INGREDIENTS

MATERIAL/CAS NUMBER PERCENT

CHLORINE
7782-50-5 99.9
Note: Balance is inert ingredients.

SECTION III - HAZARDS INDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! POISON. MAY BE FATAL IF INHALED. CORROSIVE - CAUSES SEVER BURNS

ENVIRONMENTAL HAZARD-- THIS PRODUCT IS TOXIC TO FISH. kEEP OUT OF LAKE, STREAMS, PONDS, OR OTHER WATERS.

PRECAUTIONS: PERSONNEL NEAR OR HANDLING CHLORINE SHOULD AT ALL TIMES, CARRY A NIOSH APPROVED CHEMICAL CARTRIDGE TYPE ESCAPE RESPIRATOR AND BE TRAINED IN ITS USE. AVOID BREATHING GAS. USE WITH ADEQUATE VENTILATION. VENTILATION MUST BE SUFFICIENT TO LIMIT EMPLOYEE EXPOSURE AT OR BELOW PERMISSIBLE LIMITS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. AT HIGH

CONCENTRATIONS, CHLORINE IS CORROSIVE TO EYES, SKIN, AND MUCOUS MEMBRANES. PPG ONLY SHIPS CHLORINE IN BULK TANK CARS, TANK, TRUCKS, AND BARGES. FOR ADDITIONAL DETAILS, REFER TO PPG BROCHURE #506B.

SECTION IV - FIRST AID MEASURES

INHALATION: IMMEDIATELY REMOVE PATIENT UPWIND FROM CONTAMINATED AREA. IF PATIENT IS BREATHING, PLACE IN A COMFORTABLE POSITION. KEEP PATIENT WARM AND AT REST UNTIL A PHYSICIAN ARRIVES. IF BRATHING IS DIFFICULT, GIVE OXYGEN. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION, PREFERABLEY MOUTH TO MOUTH. IN ALL ABOUVE CIRCUMSTANCES, CALL A PHYSICIAN AS SOON AS POSSIBLE. REST IS RECOMMENDED AFTER CHLORINE EXPOSURE.

EYE/SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES AND SKIN WITH PLENTY OF WATER (SOAP AND WATER FOR SKIN)FOR AT LEAST 15 MINUTES. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. NEVER ATTEMPT CHEMICAL NEUTRALIZATION. DO NOT GIVE ANY MEDICATION EXCEPT UNDER SPECIFIC INSTRUCTIONS FROM A PHYSICIAN.

INGESTION: THROAT IRRITAION: DRINKING MILK MAY HELP RELIEVE THE DISCOMFORT OF THROAT IRRITAION FROM CHLORINE EXPOSURE. CAUGHING: HOT COFFEE OR TEA IS OFTEN USED TO ALLEVIATE CAUGHING INDUCED BY CHLORINE EXPOSURE.

NOTES TO PHYSICIAN: TREAT SYMPTOMATICALLY. OBSERVE AND TREAT FOR POSSIBLE ONSET OF PULMONARY EDEMA, WHICH MAY BE DELAYED.

SECTION V - FIRE FIGHTING MEASURES

FLASH POINT: NON-FLAMMABLE

EXTINGUISHING MEDIA: NOT APPLICABLE

SPECIAL FIREFIGHTING PROCEDURES: FIRE-FIGHTERS MUST WEAR NIOSH APPROVED, PRESSURE DEMAND, SELF-CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE FOR POSSIBLE EXPOSURE TO HAZARDOUS GASES. CHLORINE CONTAINERS SHOULD BE IMMEDIATELY REMOVED FROM THE VICINITY OF A FIRE. IF THEY CANNOT BE REMOVED, NOTIFY FIREFIGHTERS AND SPRAY WATER TO COOL CONTAINERS. DO NOT SPRAY WATER ON LEAKING CONTAINER. CHLORINE WILL SUPPORT COMBUSTION. IT REACTS READILY WITH HYDROCARBONS, ALCOHOLS, ETHERS,AND SOME METALS, POSSIBLY WITH EXPLOSIVE VIOLENCE. IT WILL REACT WITH (BURN) STEEL CONTAINERS AT TEMPERATURES ABOVE 450 DEGREES F.

SECTION VI - ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

IMMEDIATELY EVACUATE ALL PERSONNEL BY FIRST MOVING AT RIGHT ANGLES TO THE WIND DIRECTION UNTIL CLEAR OF THE EXPOSURE AREA. ONLY TRAINED PERSONNEL WEARING NIOSH APPROVED, SELF-CONTAINED BREATHING APPARATUS OR FULL FACEPIECE AIRLINE RESPIRATORS WITH AUXILIARY SCBA'S OPERATED IN THE PRESSURE/DEMAND

MODE SHOULD BE PERMITTED TO ENTER AREA. NEVER PUT WATER ON CHLORINE LEAK. TO LOCATE LEAK USE COMMERCIAL AMMONIA WATER (26 BE DEGREES) IN A SQUEEZE BOTTLE OR A CLOTH TIED TO A STICK AND DIPPED IN AMMONIA WATER. WHEN AMMONIA WATER IS HELD NEAR (BUT NOT ON) A CHLORINE LEAK OR IS SPRAYED INTO THE AIR NEAR A CHLORINE LEAK, A WHITE FOG OF AMMONIA CHLORIDE FORMS. CARE SHOULD BE TAKEN TO AVOID SPRAYING AMMONIA WATER ON COPPER FITTINGS. PERSONNEL WEARING FULL FACEPIECE, SELF-CONTAINED BREATHING APPARATUS SHOULD POSITION THEMSELVES UP WIND SO ESCAPING CHLORINE MOVES AWAY FROM THEM. FOR LEAKS IN CYLINDERS AND TON CONTAINERS, ROTATE CYLINDER SO GAS ESCAPES INSTEAD OF LIQUID.
IF POSSIBLE, REMOVE TO AN ISOLATED SPOT. EMERGENCY CAPPING KITS FOR CYLINDERS, TON CONTAINERS, TANK CARS, CONTAINING COMPLETE INFORMATION, ON THESE KITS IS AVAILABLE.

SECTION VII - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORAGE:

STORE IN WELL-MAINTAINED, FIREPROOF AREA AWAY FROM OTHER CONTAINER. KEEP AWAY FROM HEAT AND MOISTURE. HEATING COULD MELT PLUGS ON CYLINDERS AND TON TANKS AND CAUSE SAFETY VALVES ON TANK CARS TO VENT, CAUSING LEAKS. MOISTURE (MORE THAN 150PPM OR WATER) AND CHLORINE CAN FORM HYDROCHLORIC AND HYPOCHLOROUS ACIDS, WHICH ARE CORROSIVE. NEVER, OLACE A LEAKING CONTAINER IN WATER OR SPRAY LEAKING CONTAINER WITH WATER. MAKE SURE PIPING IS DRY AND FREE OF CONTAMINATION OF ANY TYPE BEFORE ADMITTING CHLORINE. USE ONLY DRY, OIL-FREE AIR(-40 DEGREES F DEW POINT MINIMUM) OR OIL-FREE NITROGEN FOR PURGING, TESTING FOR LEAKS, OR PADDING. NEVER MANIFOLD CONTAINERS FROM LIQUID VALVES. THIS PRODUCT IS TOXIC TO FISH. KEEP OUT OF LAKES, STREAMS, PONDS, OR OTHER WATERS. DO NOT CONTAMINATE WATER BY CLEANING OF EQUIPMENT OR DISPOSAL OF WASTES.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:
8-HOUR WEIGHTED AVERAGE(TWA);15-MINUTE SHORT-TERM EXPOSURE LIMIT(STEL)

OSHA: 0.5 PPM TWA 1PPM STEL. 29 CFR 1910. 1000(REV. 3/1/89).
NOTE: THE CURRENTLY ENFORCEABLE 1971 LIMIT IS 1PPM CEILING.

ACGIH: 0.5 PPM TWA. 1PPM STEL.

RESPIRATORY PROTEDTION:
USE NIOSH APPROVED ACID GAS CARTRIDGE OR CANISTER
RESPIRATOR FOR ROUTINE WORK PURPOSES WHEN CONCENTRATIONS ARE ABOUVE THE PERMISSIBLE EXPOSURE LIMITS. USE FULL FACEPIECE RESPIRATORS WHEN CONCENTRATIONS ARE IRRITATING TO THE EYES. A CARTRIDGE-TYPE ESCAPE RESPIRATOR SHOULD BE CARRIED AT ALL TIMES WHEN HANDLING CHLORINE FOR ESCAPE ONLY IN CASE OF A SPILL OR LEAK. RE-ENTER AREA ONLY WITH NIOSH APPROVED, SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE. THE REAPIRATORY USE LIMITATIONS MAKE BY NIOSH OR THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 DFR 1910.134.

VENTILATION:

GENERAL OR LOCAL EXHAUST SUFFICIENT TO MAINTAIN EMPLOYEE EXPOSURE BELOW PERMISSIBLE EXPOSURE LIMITS.

EYE AND FACE PROTECTION:
SPLASHPROOF GOGGLES.

PROTECTIVE GLOVES:
RUBBER. LEATHER.

OTHER PROTECTIVE EQUIPMENT:
BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 (GENERAL REQUIREMENTS),. 133 (EYE AND FACE PROTECTION), AND .138(HAND PROTECTION).

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: -29.31F(-34C)
VAPOR DENSITY: 2.67@70F
SPECIFIC GRAVITY(WATER=1): 1.468 LIQUID@0/4C
pH: ACIDIC
FREEZING / MELTING POINT: -101C
SOLUBILITY(wt.% IN WATER) 0.73@20C
BULK DENSITY: 3.2 GRAMS/LITER
VOLUME % VOLATILE: 100
VAPOR PRESSURE: 4996 MM GH @ 68F
EVAPORATION RATE: NA
HEAT OF SOLUTION: UNKNOWN
PHYSICAL STATE: GAS UNDER ATMOSPHERE CONDITIONS OR LIQUID UNDER PRESSURE.
ODOR: PUNGENT, IRRITATING
COLOR: GREENISH-YELLOW GAS OR AMBER LIQUID

SECTION X - STABILITY AND REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

INCOMPATIBILITY(CONDITIONS/MATERIALS TO AVOID):
EXCESSIVE HEAT. CONTAMINATION. ORGANIC MATERIALS (SUCH AS HYDROCARBONS, ALCOHOLS, AND ETHERS). AMMONIA. HYDROGEN. AMINES.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:
NONE KNOWN.

SECTION XI - TOXICOLOGICAL INFORMATION

ACUTE INHALATION LX50: 293PPM(RAT)(1HOUR). MODERATE TOXICITY.

CHRONIC EFFECTS/CARCINOGENICITY: THIS PRODUCT IN NOT LISTED AS A CARCINOGEN

OR SUSPECTED CHARCINOGEN BY NTP, IARC, OR OSHA.

MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.

EFFECTS OF OVEREXPOSURE:
ACCUTE:

INGESTION: NOT APPLICABLE FOR GAS. LIQUID COULD PRODUCE SEVERE BURNS AND INJURY ON CONTACT.

EYE/SKIN: LIQUID AND CONCENTRATED GAS COULD PRODUCE SEVERE BURNS AND INJURY ON CONTACT. CHLORINE GAS CAN CAUSE A STINGING OR BURNING SENSATION TO THE EYES AT CONCENTRATIONS AS LOW AS 3-6PPM.

INHALATION: LETHAL CONCENTRATIONS FOR RABBITS, CATS, AND GUINEA PIGS BASED ON 30-60 MINUTE EXPOSURE = 0.4-0.9 MG/L AIR(280-630). INHALATION CAN CAUSE CAUGHING, SNEEZING, SHORTNESS OF BREATH, SENSATION OF TIGHTNESS IN THE CHEST, AS WELL AS SEVERE RESTLESSNESS OR ANXIETY, NAUSEA, AND VOMITING. THE NOSE AND THROAT MAY BECOME IRRITATED; A STINGING AND BURNING SENSATION MAY BE EXPERIENCED. IMMEDIATE FATALITIES CAN OCCUR AS A RESULT OF SUFFOCATION.DELAYED FATALITIES CAN OCCUR AS A RESULT OF PULMONARY EDEMA(FLUIT IN THE LUNGS). FOR THIS REASON, REST AND IMMEDIATE ATTENTION AFTER INHALATION IS IMPORTANT. PERSONS WITH KNOWN CARDIOVASCULAR OR LUNG PROBLEMS SHOULD NOT RISK CHLORINE EXPOSURE.

STUDIES HAVE BEEN CONDUCTED EXPOSING HUMAN VOLUNTEERS TO AIRBORNE CONCENTRATIONS OF CHLORINE BETWEEN 0.5 AND 2PPM FOR UP TO 8 HOURS. IN THESE STUDIES, EIGHT-HOUR EXPOSURES TO 1PPM PRODUCED TRANSIENT CHANGES IN PULMONARY FUNCTION AND INCREASED SUBJECTIVE IRRITATION. EIGHT-HOUR EXPOSURES AT 0.5 PPM PRODUCED NO SIGNIFICANT CHANGE IN PULMONARY FUNCTION AND LESS SEVERE SUBJECTIVE IRRITATION.

CHRONIC: REPEATED EXPOSURES CAN RESULT IN A LOSS OF ABITITY TO DETECT THE ODOR OF CHLORINE. LONG-TERM EXPOSURES MAY CAUSE DAMAGE TO TEETH AND INFLAMMATION OR UNLCERATION OF THE NASAL PASSAGES.

A STUDY WAS CONDUCTED ON DIAPHRAGM CELL WORKERS AT 25 PLANTS MANUFACTURING CHLORINE IN NORTH AMERICA WHERE EXPOSURES RANGED FROM 0.006 PPM TO 1.42 PPM WITH A MEAN OF 0.146 PPM. THE STUDY FOUND THAT THESE CHLORINE WORKERS WERE NOT AFFECTED IN ANY MEASURABLE WAY BY YEARS OF EXPOSURE TO LOW LEVELS OF CHLORINE. THERE WAS NO HIGHER INCIDENCE OF ABNORMAL CHEST X-RAYS, ABNORMAL EKG'S OR PULMONARY FUNCTION AMONG THESE WORKERS.

SECTION XII - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:
HIGHLY TOXIC TO AQUATIC LIFE. 0.4MG/L(BLUEGILL)96-HOUR TLM LC50. COLD WATER FISH(TROUT) - LC50 = 6-60 MICROGRAM/LITER OR 0.006-0.060 MG/L OF TATAL RESIDUE CHLORINE AT DIFFERENT LIFE STAGES AND FOR DIFFERENT SPECIES. WARM WATER FISH - LC50 = 0.09-0.3 MG/L OF TOTAL RESIDUE CHLORINE.

SECTION XIII - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:
CHLORINE CAN BE ABSORBED IN ALKALINE SOLUTIONS. COMMON SOLUTIONS ARE CAUSTIC SODA ASH. THE FOLLOWING ARE ALKALINE SOLUTIONS FOR CHLORINE ABSORPTION:

CHLORINE CONTAINER SIZE	CAUSTIC SODA LB(100%)	CAUSTIC SODA WATER(GAL)	SODA ASH LB.	SODA ASH WATER(GAL)
100 POUNDS	125	40	300	100
150 POUNDS	188	60	450	150
1 TON	2500	800	6000	2000

PLACE NEUTRALIZED MATERIAL IN A CLOSED CONTAINER. FOR GUIDANCE IN DISPOSAL OF NEUTRALIZED MATERIAL, CONTACT YOUR REGIONAL OFFICE OF THE ENVIRONMENTAL PROTECTION AGENCY (EPA). DO NOT DISCARD TO SEWER.

CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIAL AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

SECTION XIV - TRANSPROT INFORMATION

USA DOT DESCRIPTION:
PROPER SHIPPING NAME:.....CHLORINE
HAZARD CLASS:.....2.3(POISON GAS--INHALATION HAZARD--ZONE B
SUBSIDIARY RISK:.....8 (CORROSIVE).
IDENTIFICATION NUMBER:.....UN10017
PACKING GROUP:.....NOT APPLICABLE
REPORTABLE QUANTITY:.....10 LBS./4.5KG
MARINE POLLUTANT:.....YES

CANADA TDG DESCRIPTION: CHLORINE, CLASS 2.3(5.1), UN1017**SPECIAL COMMODITY**

SECTION XV - REGULATORY INFORMATION

USA TSCA: THIS PRODUCT IS LISTED ON THE TSCA INVENTORY.
EUROPE EINECS: THIS PRODUCT IS LISTED ON THE EINECS.
CANADA DSL: THIS PRODUCT IS LISTED ON THE CANADIAN DSL.
AUSTRALIA AICS; THIS PRODUCT IS LISTED ON AICS.
KOREA ECL: THIS PRODUCT IS LISTED ON MITI.

SARA TITLE III:
SARA(311, 312) HAZARD CLASS: ACUTE HEALTH HAZARD. REACTIVE HAZARD. SUDDEN RELEASE OF PRESSURE.

SARA(313)CHEMICALS: LISTED.

SARA SECTION 302: LISTED AS AN EXTREMELY HAZARDOUS SUBSTANCE.

CERCLA HAZARDOUS SUBSTANCE: LISTED IN TABLE 302.4 OF 40 CTR PART 302 AS A HARZARDOUS SUBSTANCE WITH A REPROTABLE QUANTITY OF 10 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPROTED TO THE NATIONAL CENTER, 800-424-8802.

CANADA REGULATIONS (WHMIS): SENSITIZATION TO PRODUCT: NONE KNOWN. REPRODUCTIVE TOXICITY: NONE KNOWN. ODOR THRESHLOD: 1PPM. PRODUCT USE: WATER SANITIZATION CHEMICAL REACTANT.

FIFRA:
THIS PRODUCT IS REGISTERED WITH EPA AS A PESTICIDE.

SECTION XVI - OTHER INFORMATION

OTHER INFORMATION:

NSF DRINKING WATER TREATMENT CHEMICALS LISTING - PPG CHLORINE IS CERTIFIED FOR MAXIMUM USE AT 30MG/L UNDER ANSI/NSF STANDARD 60.

INCASE OF EMERGENCY IN CANADA, CONTACT PPG CANADA, INC., B.P. 2010, BEAUHARNOIS, QUEBEC J6N 3C3, 514-429-3552, OR CANUTEX 613-996-6666.

THE FOLLOWIND HAS BEEN REVISED SINCE THE LAST ISSURE OF THIS MSDS:
DATE. EDITION. MSDS HAS BEEN REFORMATTED INTO 16 SECTIOINS.

PREVIOUS REVISION DATE: 01-08-1996
PREVIOUS EDITION NUMBER: 017

NA = NOT AVAILABLE

FORM OSHA-20
REV.: MAY 72
930.540

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT: NALCO A+Z+LITE 7356

EMERGENCY TELEPHONE NUMBER:
MEDICAL (800) 462-5378 (24 HOURS)
(800) I-M-ALERT

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALCO A+Z+LITE 7356

DESCRIPTION:
AN AQUEOUS SOLUTION OF A ZINC SALT, A SUBSTITUTED CARBOXYLIC ACID AND PHOSPHORIC ACID

NFPA 704M/HMIS RATING:
1/1 HEALTH
0/0 FLAMMABILITY
0/0 REACTIVITY
0 OTHER

0=INSIGNIFICANT 1=SLIGHT 2=MODERATE 3=HIGH 4=EXTREME

SECTION 2 HAZARDOUS INGREDIENTS

OUR HAZARD EVALUATION HAS IDENTIFIED THE FOLLOWING CHEMICAL INGREDIENT(S) AS HAZARDOUS UNDER OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200. CONSULT SECTION 14 FOR THE NATURE OF THE HAZARD(S).

INGREDIENT(S)	CAS #	APPROX.%
PHOSPHORIC ACID	7664-38-2	5-10
ZINC CHLORIDE	7646-85-7	1-5

SECTION 3 PRECAUTIONARY LABEL INFORMATION

WARNING:
CAUSES IRRITATION TO SKIN AND EYES. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. WEAR GOGGLES AND FACE SHIELD WHEN HANDLING. AVOID PROLONGED OR REPEATED BREATHING OF VAPOR. USE WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EMPTY CONTAINERS MAY CONTAIN RESIDUAL PRODUCT. DO NOT REUSE CONTAINER UNLESS PROPERLY RECONDITIONED.

SECTION 4 FIRST AID INFORMATION

EYES: FLUSH WITH WATER FOR 15 MINUTES. CALL A PHYSICIAN.

SKIN: FLUSH WITH WATER FOR 15 MINUTES.

INGESTION: DO NOT INDUCE VOMITING. GIVE WATER. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. TREAT SYMPTOMS. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
BASED ON THE INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITION.

CAUTION:
IF UNCONSCIOUS, HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: EYE, SKIN

EYE CONTACT: CAN CAUSE MILD, SHORT-LASTING IRRITATION.

SKIN CONTACT: CAN CAUSE MILD, SHORT-LASTING IRRITATION.

SYMPTOMS OF EXPOSURE:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY SYMPTOMS FROM EXPOSURE NOT PREVIOUSLY MENTIONED.

AGGRAVATION OF EXISTING CONDITIONS:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY WORSENING OF EXISTING CONDITIONS.

SECTION 6 TOXICOLOGY INFORMATION

TOXICITY STUDIES:
TOXICITY STUDIES HAVE BEEN CONDUCTED ON THIS PRODUCT. THE RESULTS ARE SHOWN BELOW.

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):
SKIN IRRITATION INDEX DRAIZE RATING: 1.6/8.0 MINIMALLY IRRITATING

COMMENTS:
REDNESS AND SWELLING WERE NOTED IMMEDIATELY UPON REMOVAL OF THE OCCLUSIVE DRESSING. AT 24 HOURS, THREE OF THE SIX RABBITS STILL EXHIBITED REDNESS. THIS REDNESS SLOWLY SUBSIDED SO THAT BY DAY SEVEN ALL RABBITS HAD RETURNED TO NORMAL.

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):
EYE IRRITATION INDEX DRAIZE RATING: 13/110.0 MINIMALLY IRRITATING

COMMENTS:
NO CORNEAL OPACITY WAS NOTED AT ANY SCORING INTERVAL. SLIGHT IRITIS WAS OBSERVED ON DAYS 1, 2 AND 3 IN TWO OF SIX ANIMALS. THIS CLEARED BY DAY SEVEN. MODERATE TO SEVERE CONJUNCTIVAL IRRITATION WAS NOTED AMONG ALL SIX RABBITS. BY DAY SEVEN ALL BUT ONE RABBIT HAD RETURNED TO NORMAL.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR:	CLEAR COLORLESS TO LIGHT YELLOW	
FORM:	LIQUID	
ODOR:	NONE	
DENSITY:	9.2-9.4 LBS/GAL.	
SOLUBILITY IN WATER:	COMPLETELY	
SPECIFIC GRAVITY:	1.10-1.13 @ 60 DEGREES F	ASTM D-1298
PH (NEAT) =	0.2-0.8	ASTM E-70
VISCOSITY:	4 CPS @ 60 DEGREES F	ASTM D-2983
FREEZE POINT:	20 DEGREES F	ASTM D-1177
BOILING POINT:	210 DEGREES F @ 760 MM HG	ASTM D-86
FLASH POINT:	NONE (PMCC)	ASTM D-93

NOTE: THESE PHYSICAL PROPERTIES ARE TYPICAL VALUES FOR THIS PRODUCT.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: NONE (PMCC) ASTM D-93

EXTINGUISHING MEDIA: NOT APPLICABLE

UNUSUAL FIRE AND EXPLOSION HAZARD:
CONTACT WITH REACTIVE METALS (EG. ALUMINUM) MAY RESULT IN THE GENERATION OF FLAMMABLE HYDROGEN GAS.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY:
AVOID ALKALINE MATERIALS (EG. AMMONIA AND ITS SOLUTIONS, CARBONATES, SODIUM HYDROXIDE (CAUSTIC), POTASSIUM HYDROXIDE, CALCIUM HYDROXIDE (LIME), CYANIDES,

SULFIDES, HYPOCHLORITES, CHLORITES) WHICH CAN GENERATE HEAT WITH SPLATTERING OR BOILING AND THE RELEASE OF TOXIC FUMES.

AVOID CONTACT WITH ALUMINUM. CORROSIVE TO ALUMINUM.

THERMAL DECOMPOSITION PRODUCTS:
IN THE EVENT OF COMBUSTION CO, CO2 MAY BE FORMED. DO NOT BREATHE SMOKE OR FUMES. WEAR SUITABLE PROTECTIVE EQUIPMENT.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION:
IF IT IS POSSIBLE TO GENERATE SIGNIFICANT LEVELS OF VAPORS OR MISTS, A NIOSH APPROVED OR EQUIVALENT ACID GAS CARTRIDGE RESPIRATOR IS RECOMMENDED.

FOR LARGE SPILLS, ENTRY INTO LARGE TANKS, VESSELS OR ENCLOSED SMALL SPACES WITH INADEQUATE VENTILATION, A POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

VENTILATION: GENERAL VENTILATION IS RECOMMENDED.

PROTECTIVE EQUIPMENT:
USE IMPERMEABLE GLOVES AND CHEMICAL SPLASH GOGGLES WHEN ATTACHING FEEDING EQUIPMENT, DOING MAINTENANCE OR HANDLING PRODUCT. EXAMPLES OF IMPERMEABLE GLOVES AVAILABLE ON THE MARKET ARE NEOPRENE, NITRILE, PVC, NATURAL RUBBER, VITON AND BUTYL (COMPATIBILITY STUDIES HAVE NOT BEEN PERFORMED).

THE AVAILABILITY OF AN EYE WASH FOUNTAIN AND SAFETY SHOWER IS RECOMMENDED.

IF CLOTHING IS CONTAMINATED, REMOVE CLOTHING AND THOROUGHLY WASH THE AFFECTED AREA. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (800) I-M-ALERT OR (800) 462-5378.

SPILL CONTROL AND RECOVERY:

SMALL LIQUID SPILLS:
CONTAIN WITH ABSORBENT MATERIAL, SUCH AS CLAY, SOIL OR ANY COMMERCIALLY AVAILABLE ABSORBENT. SHOVEL RECLAIMED LIQUID AND ABSORBENT INTO RECOVERY OR SALVAGE DRUMS FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

LARGE LIQUID SPILLS:
DIKE TO PREVENT FURTHER MOVEMENT AND RECLAIM INTO RECOVERY OR SALVAGE DRUMS OR TANK TRUCK FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

FOR LARGE INDOOR SPILLS, EVACUATE EMPLOYEES AND VENTILATE AREA. THOSE RESPONSIBLE FOR CONTROL AND RECOVERY SHOULD WEAR THE PROTECTIVE EQUIPMENT SPECIFIED IN SECTION 10.

DISPOSAL:
IF THIS PRODUCT BECOMES A WASTE, IT MEETS THE CRITERIA OF A HAZARDOUS WASTE AS DEFINED UNDER THE RESOURCES CONSERVATION AND RECOVERY ACT (RCRA) 40 CFR 261. HAZARDOUS WASTE D002.

AS A HAZARDOUS LIQUID WASTE, IT SHOULD BE SOLIDIFIED WITH STABILIZING AGENTS (SUCH AS SAND, FLY ASH, OR CEMENT) SO THAT NO FREE LIQUID REMAINS BEFORE DISPOSAL TO AN INDUSTRIAL WASTE LANDFILL. A HAZARDOUS LIQUID WASTE CAN ALSO BE DEEP-WELL INJECTED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION 12 ENVIRONMENTAL INFORMATION

AQUATIC DATA:

96 HOUR STATIC ACUTE LC50 TO BLUEGILL SUNFISH = 700 MG/L

96 HOUR NO OBSERVED EFFECT CONCENTRATION IS 180 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: SLIGHTLY TOXIC

96 HOUR STATIC ACUTE LC50 TO RAINBOW TROUT = 8.7 MG/L

96 HOUR NO OBSERVED EFFECT CONCENTRATION IS 2.5 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: TOXIC

96 HOUR STATIC ACUTE LC50 TO MYSID SHRIMP = 26.9 MG/L

96 HOUR NOEC = 15 MG/L

TOXICITY RATING: MODERATELY TOXIC

IF RELEASED INTO THE ENVIRONMENT, SEE CERCLA IN SECTION 14.

SECTION 13 TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES:	CORROSIVE LIQUID, N.O.S.
UN/ID NO:	UN 1760
HAZARD CLASS - PRIMARY:	8 - CORROSIVE
PACKING GROUP:	III
IMDG PAGE NO:	8147

IATA NOTE: P:818 C:820

IATA LIMIT: C: 60 L

FLASH POINT: NONE

HAZARDOUS COMPONENT(S): PHOSPHORIC ACID, ZINC CHLORIDE

RQ LBS (PER PACKAGE): 24,000

RQ COMPONENT(S) ZINC CHLORIDE

SECTION 14 REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT.

FEDERAL REGULATIONS:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
BASED ON OUR HAZARD EVALUATION, THE FOLLOWING INGREDIENTS IN THIS PRODUCT ARE HAZARDOUS AND THE REASONS ARE SHOWN BELOW.

PHOSPHORIC ACID = TWA 1 MG/M3, STEL 3 MG/M3 ACGIH/TLV
ZINC CHLORIDE (FUME) = TWA 1 MG/M3, STEL 2 MG/M3 ACGIH/TLV

PHOSPHORIC ACID = TWA 1 MG/M3, STEL 3 MG/M3 OSHA/PEL
ZINC CHLORIDE (FUME) = TWA 1 MG/M3, STEL 2 MG/M3 OSHA/PEL

CERCLA/SUPERFUND, 40 CFR 117, 302:
THIS PRODUCT CONTAINS ZINC CHLORIDE A REPORTABLE QUANTITY (RQ) SUBSTANCE AND IF 24,000 POUNDS OF PRODUCT ARE RELEASED, IT REQUIRES NOTIFICATION TO THE NATIONAL RESPONSE CENTER, WASHINGTON, D.C. (1-800-424-8802).

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED IN APPENDIX A AND B AS AN EXTREMELY HAZARDOUS SUBSTANCE.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
OUR HAZARD EVALUATION HAS FOUND THIS PRODUCT TO BE HAZARDOUS. THE PRODUCT SHOULD BE REPORTED UNDER THE FOLLOWING EPA HAZARD CATEGORIES:

XX IMMEDIATE (ACUTE) HEALTH HAZARD
-- DELAYED (CHRONIC) HEALTH HAZARD
-- FIRE HAZARD
-- SUDDEN RELEASE OF PRESSURE HAZARD
-- REACTIVE HAZARD

UNDER SARA 311 AND 312, THE EPA HAS ESTABLISHED THRESHOLD QUANTITIES FOR THE

REPORTING OF HAZARDOUS CHEMICALS. THE CURRENT THRESHOLDS ARE: 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY (TPQ), WHICHEVER IS LOWER, FOR EXTREMELY HAZARDOUS SUBSTANCES AND 10,000 POUNDS FOR ALL OTHER HAZARDOUS CHEMICALS.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
THIS PRODUCT CONTAINS THE FOLLOWING INGREDIENT(S), (WITH CAS # AND % RANGE) WHICH APPEAR(S) ON THE LIST OF TOXIC CHEMICALS.

PHOSPHORIC ACID	7664-38-2	5-10
ZINC CHLORIDE	7646-85-7	1-5

TOXIC SUBSTANCES CONTROL ACT (TSCA):
THE CHEMICAL INGREDIENTS IN THIS PRODUCT ARE ON THE 8(B) INVENTORY LIST (40 CFR 710).

U.S. DEPARTMENT OF AGRICULTURE (USDA):
USDA INSPECTION AND GRADING PROGRAMS - FOOD SAFETY AND INSPECTION SERVICE:
THIS PRODUCT IS AUTHORIZED BY USDA FOR USE IN FEDERALLY INSPECTED MEAT AND POULTRY PLANTS. AUTHORIZED USE IS UNDER CATEGORY G5, FOR TREATMENT OF COOLING AND RETORT WATER; AND G7, TREATING BOILERS, STEAM LINES, AND/OR COOLING SYSTEMS. THE FOLLOWING LIMITATIONS APPLY FOR G7: NO CONTACT WITH EDIBLE PRODUCTS.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
CONSULT SECTION 11 FOR RCRA CLASSIFICATION.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (FORMERLY SEC. 307), 40 CFR 116/FORMERLY SEC. 311:
THIS PRODUCT CONTAINS THE FOLLOWING INGREDIENTS COVERED BY THE CLEAN WATER ACT:

ZINC CHLORIDE - SECTION 307, 311
PHOSPHORIC ACID - SECTION 311

CLEAN AIR ACT, SEC. 111 (40 CFR 60), SEC. 112 (40 CFR 61, 1990 AMENDMENTS), SEC. 611 (40 CFR 82, CLASS I AND II OZONE DEPLETING SUBSTANCES):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS COVERED BY THE CLEAN AIR ACT.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS WHICH REQUIRE WARNING UNDER CALIFORNIA PROPOSITION 65.

MICHIGAN CRITICAL MATERIALS:
THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCE(S) IDENTIFIED ON THE MICHIGAN CRITICAL MATERIALS REGISTER:
ZINC CHLORIDE

STATE RIGHT TO KNOW LAWS:

REGULATED IN THOSE STATE USING THE TLV FOR ZINC CHLORIDE, PHOSPHORIC ACID AS A CRITERIA FOR LISTING.

INTERNATIONAL REGULATIONS:
THIS IS A WHMIS CONTROLLED PRODUCT UNDER THE HOUSE OF COMMONS OF CANADA BILL C-70. THE PRODUCT CONTAINS THE FOLLOWING SUBSTANCE(S), FROM THE INGREDIENT DISCLOSURE LIST OR HAS BEEN EVALUATED BASED ON ITS TOXICOLOGICAL PROPERTIES, TO CONTAIN THE FOLLOWING HAZARDOUS INGREDIENT(S):

CHEMICAL NAME	CAS #	% CONCENTRATION RANGE
PHOSPHORIC ACID	7664-38-2	5-10
ZINC CHLORIDE	7646-85-7	1-5

SECTION 15 ADDITIONAL INFORMATION

NONE

SECTION 16 USER'S RESPONSIBILITY

THIS PRODUCT MATERIAL SAFETY DATA SHEET PROVIDES HEALTH AND SAFETY INFORMATION. THE PRODUCT IS TO BE USED IN APPLICATIONS CONSISTENT WITH OUR PRODUCT LITERATURE. INDIVIDUALS HANDLING THIS PRODUCT SHOULD BE INFORMED OF THE RECOMMENDED SAFETY PRECAUTIONS AND SHOULD HAVE ACCESS TO THIS INFORMATION. FOR ANY OTHER USES, EXPOSURES SHOULD BE EVALUATED SO THAT APPROPRIATE HANDLING PRACTICES AND TRAINING PROGRAMS CAN BE ESTABLISHED TO ENSURE SAFE WORKPLACE OPERATIONS. PLEASE CONSULT YOUR LOCAL SALES REPRESENTATIVE FOR ANY FURTHER INFORMATION.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, DOULL, J., KLAASSEN, C. D., AND ADMUR, M. O., EDS., MACMILLIAN PUBLISHING COMPANY, INC., N. Y., 2ND EDITION, 1980.

CHEMICAL HAZARDS OF THE WORKPLACE, PROCTOR, N. H., AND HUGHES, J. P., EDS., J. P. LIPINCOTT COMPANY, N.Y., 1981.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, SAX, N. IRVING, ED., VAN NOSTRAND REINHOLD COMPANY, N.Y., 6TH EDITION, 1984.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, GENEVA: WORLD HEALTH ORGANIZATION, INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, 1972-1977.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, CLAYTON, G. D., CLAYTON, F. E., EDS., JOHN WILEY AND SONS, N. Y., 3RD EDITION, VOL. 2 A-C, 1981.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, CENTER FOR DISEASE CONTROL, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, 1983 SUPPLEMENT OF 1981-1982 EDITION, VOL. 1-3, OH, 1984.

TITLE 29 CODE OF FEDERAL REGULATIONS PART 1910, SUBPART Z, TOXIC AND HAZARDOUS SUBSTANCES, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, OH.

PREPARED BY: RICKY A. STACKHOUSE PHD., TOXICOLOGIST

DATE CHANGED: 08/17/93
DATE PRINTED: 11/18/95

NALCO CHEMICAL COMPANY
ONE NALCO CENTER
NAPERVILLE, ILLINOIS 60563-1198
AREA 708-305-1000

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT
NALSPERSE 7348 BIODISPERSANT

EMERGENCY TELEPHONE NUMBER
MEDICAL (708) 920-1510 (24 HOURS)

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALSPERSE 7348 BIODISPERSANT

DESCRIPTION: A POLYGLYCOL

NFPA 704M/HMIS RATING:
0/1 HEALTH
1/1 FLAMMABILITY
0/0 REACTIVITY
0 OTHER

0=INSIGNIFICANT
1=SLIGHT
2=MODERATE
3=HIGH
4=EXTREME

SECTION 2 HAZARDOUS INGREDIENTS

OUR HAZARD EVALUATION OF THE INGREDIENT(S) UNDER OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 HAS FOUND NONE OF THE INGREDIENT(S) HAZARDOUS.

SECTION 3 PRECAUTIONARY LABEL INFORMATION

CAUTION:
MAY CAUSE IRRITATION TO SKIN AND EYES. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. DO NOT TAKE INTERNALLY.

EMPTY CONTAINERS MAY CONTAIN RESIDUAL PRODUCT. DO NOT REUSE CONTAINER UNLESS PROPERLY RECONDITIONED.

SECTION 4 FIRST AID INFORMATION

EYES: FLUSH WITH WATER FOR 15 MINUTES. CALL A PHYSICIAN.

SKIN: FLUSH WITH WATER FOR 15 MINUTES.

INGESTION: DO NOT INDUCE VOMITING. GIVE WATER. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. TREAT SYMPTOMS. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
BASED ON THE INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITION.

CAUTION:
IF UNCONSCIOUS, HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: EYE, SKIN

EYE CONTACT: MAY CAUSE IRRITATION WITH PROLONGED CONTACT.

SKIN CONTACT: MAY CAUSE IRRITATION WITH PROLONGED CONTACT.

SYMPTOMS OF EXPOSURE:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY SYMPTOMS FROM EXPOSURE NOT PREVIOUSLY MENTIONED.

AGGRAVATION OF EXISTING CONDITIONS:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY WORSENING OF EXISTING CONDITIONS.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES:
ACUTE TOXICITY STUDIES HAVE BEEN CONDUCTED ON THIS PRODUCT. THE RESULTS ARE SHOWN BELOW.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = 2,229 MG/KG

95% CONFIDENCE LIMIT = 1,400 - 3,085 MG/KG

TOXICITY RATING: MODERATELY TOXIC

COMMENTS:
PHARMOCOTOXIC SIGNS NOTED FOLLOWING PRODUCT ADMINISTRATION INCLUDED ANOREXIA, DIARRHEA, DECREASED ACTIVITY, SALIVATION, AND ATAXIA. ALL SURVIVING ANIMALS APPEARED NORMAL 72-HOURS POST DOSING. DEATHS OCCURRED 24-48 HOURS AFTER ADMINISTRATION OF THE TEST ARTICLE.

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):
SKIN IRRITATION INDEX DRAIZE RATING: 0.57/8.0 SLIGHTLY IRRITATING

COMMENTS:
APPLICATION OF 0.5 ML TO A 6 CM2 SITE ON THE SHAVEN BACK OF EACH OF A GROUP OF

SIX ALBINO RABBITS (4-HOUR OCCLUDED CONTACT) RESULTED IN VERY MILD REDNESS AND NO SWELLING. AT THE END OF 72-HOURS, ALL SITES HAD RETURNED TO NORMAL.

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):
EYE IRRITATION INDEX DRAIZE RATING: 2.7/110.0 MINIMALLY IRRITATING

COMMENTS:
INSTILLATION OF 0.1 ML INTO THE CONJUNCTIVAL SAC OF ONE EYE OF EACH OF A GROUP OF SIX ALBINO RABBITS PRODUCED VERY SLIGHT REDNESS ONE HOUR AFTER INSTILLATION. BY THE END OF 24-HOURS, ALL EYES HAD ESSENTIALLY RETURNED TO NORMAL.

HUMAN HAZARD CHARACTERIZATION:
BASED ON OUR HAZARD CHARACTERIZATION, THE POTENTIAL HUMAN HAZARD IS: LOW

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: CLEAR

FORM: LIQUID

ODOR: NONE

DENSITY: 8.5 LBS/GAL.

SOLUBILITY IN WATER: INSOLUBLE

SPECIFIC GRAVITY: 1.00-1.04 @ 68 DEGREES F ASTM D-1298

PH (AT 2.5%) = 5.0 - 7.5 ASTM E-70

VISCOSITY: 273 CPS @ 78 DEGREES F ASTM D-2983

FREEZE POINT: NONE ASTM D-1177

FLASH POINT: GREATER THAN 200 DEGREES F (PMCC) ASTM D-93

VAPOR PRESSURE: LESS THAN 0.01MM HG @ 68 DEGREES F ASTM D-323

VOLATILE ORGANIC
COMPOUND (VOC): 0.06 LBS/GAL. EPA METHOD 24

NOTE: THESE PHYSICAL PROPERTIES ARE TYPICAL VALUES FOR THIS PRODUCT.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: GREATER THAN 200 DEGREES F (PMCC) ASTM D-93

EXTINGUISHING MEDIA:
BASED ON THE NFPA GUIDE, USE DRY CHEMICAL, FOAM, CARBON DIOXIDE OR OTHER EXTINGUISHING AGENT SUITABLE FOR CLASS B FIRES. USE WATER TO COOL CONTAINERS EXPOSED TO FIRE. FOR LARGE FIRES, USE WATER SPRAY OR FOG, THOROUGHLY DRENCHING

THE BURNING MATERIAL.

UNUSUAL FIRE AND EXPLOSION HAZARD: NONE

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY:
AVOID CONTACT WITH STRONG OXIDIZERS (EG. CHLORINE, PEROXIDES, CHROMATES, NITRIC ACID, PERCHLORATES, CONCENTRATED OXYGEN, PERMANGANATES) WHICH CAN GENERATE HEAT, FIRES, EXPLOSIONS AND THE RELEASE OF TOXIC FUMES.

THERMAL DECOMPOSITION PRODUCTS:
IN THE EVENT OF COMBUSTION CO, CO2 MAY BE FORMED. DO NOT BREATHE SMOKE OR FUMES. WEAR SUITABLE PROTECTIVE EQUIPMENT.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION:
RESPIRATORY PROTECTION IS NOT NORMALLY NEEDED SINCE THE VOLATILITY AND TOXICITY ARE LOW. IF SIGNIFICANT VAPORS, MISTS OR AEROSOLS ARE GENERATED, WEAR A NIOSH APPROVED OR EQUIVALENT RESPIRATOR.

FOR LARGE SPILLS, ENTRY INTO LARGE TANKS, VESSELS OR ENCLOSED SMALL SPACES WITH INADEQUATE VENTILATION, A POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

VENTILATION:
GENERAL VENTILATION IS RECOMMENDED. ADDITIONALLY, LOCAL EXHAUST VENTILATION IS RECOMMENDED WHERE VAPORS, MISTS OR AEROSOLS MAY BE RELEASED.

PROTECTIVE EQUIPMENT:
USE IMPERMEABLE GLOVES AND CHEMICAL SPLASH GOGGLES WHEN ATTACHING FEEDING EQUIPMENT, DOING MAINTENANCE OR HANDLING PRODUCT. EXAMPLES OF IMPERMEABLE GLOVES AVAILABLE ON THE MARKET ARE NEOPRENE, NITRILE, PVC, NATURAL RUBBER, VITON, AND BUTYL (COMPATIBILITY STUDIES HAVE NOT BEEN PERFORMED).

THE AVAILABILITY OF AN EYE WASH FOUNTAIN AND SAFETY SHOWER IS RECOMMENDED.

IF CLOTHING IS CONTAMINATED, REMOVE CLOTHING AND THOROUGHLY WASH THE AFFECTED AREA. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

HUMAN EXPOSURE CHARACTERIZATION:
BASED ON NALCO'S RECOMMENDED PRODUCT APPLICATION AND OUR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT, THE POTENTIAL HUMAN EXPOSURE IS: MODERATE.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (800) I-M-ALERT OR (800) 462-5378.

SPILL CONTROL AND RECOVERY:

SMALL LIQUID SPILLS:
CONTAIN WITH ABSORBENT MATERIAL, SUCH AS CLAY, SOIL OR ANY COMMERCIALLY AVAILABLE ABSORBENT. SHOVEL RECLAIMED LIQUID AND ABSORBENT INTO RECOVERY OR SALVAGE DRUMS FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

LARGE LIQUID SPILLS:
DIKE TO PREVENT FURTHER MOVEMENT AND RECLAIM INTO RECOVERY OR SALVAGE DRUMS OR TANK TRUCK FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

DISPOSAL:
IF THIS PRODUCT BECOMES A WASTE, IT DOES NOT MEET THE CRITERIA OF A HAZARDOUS WASTE AS DEFINED UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40 CFR 261, SINCE IT DOES NOT HAVE THE CHARACTERISTICS OF SUBPART C, NOR IS IT LISTED UNDER SUBPART D.

AS A NON-HAZARDOUS LIQUID WASTE, IT SHOULD BE SOLIDIFIED WITH STABILIZING AGENTS (SUCH AS SAND, FLY ASH, OR CEMENT) SO THAT NO FREE LIQUID REMAINS BEFORE DISPOSAL TO AN INDUSTRIAL WASTE LANDFILL. A NON-HAZARDOUS LIQUID WASTE CAN ALSO BE INCINERATED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION 12 ENVIRONMENTAL INFORMATION

CHEMICAL OXYGEN DEMAND (COD): 2,000,000 MG/L

TOTAL ORGANIC CARBON (TOC): 540,000 MG/L

AQUATIC DATA:

96 HOUR STATIC ACUTE LC50 TO BLUEGILL SUNFISH = GREATER THAN 1,000 PPM

96 HOUR STATIC ACUTE LC50 TO RAINBOW TROUT = GREATER THAN 1,000 MG/L
96 HOUR NO OBSERVED EFFECT CONCENTRATION IS 320 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: ESSENTIALLY NON-TOXIC

48 HOUR STATIC ACUTE LC50 TO DAPHNIA MAGNA = GREATER THAN 1,000 MG/L
48 HOUR NO OBSERVED EFFECT CONCENTRATION IS 180 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: ESSENTIALLY NON-TOXIC

96 HOUR STATIC ACUTE LC50 TO CHANNEL CATFISH, LARGEMOUTH BASS, GRASS SHRIMP, SHORE CRABS = GREATER THAN 1,000 PPM

96 HOUR STATIC ACUTE LC50 TO EASTERN OYSTERS = 307 PPM

96 HOUR STATIC ACUTE LC50 TO QUAHOG CLAMS = 567 PPM

48 HOUR EC50 TO CERIODAPHNIA DUBIA = 240 MG/L

48 HOUR NO OBSERVED EFFECT CONCENTRATION IS 130 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

7-DAY CHRONIC REPRODUCTIVE IC25 AND IC25 TO CERIODOPHNIA DUBIA IS 17 MG/L AND 13 MG/L, RESPECTIVELY

THE 7-DAY NOEL BASED ON REPRODUCTION IS 12.5 MG/L
THE 7-DAY LOEL BASED ON REPRODUCTION IS 25 MG/L

IF RELEASED INTO THE ENVIRONMENT, SEE CERCLA IN SECTION 14.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION: BASED ON OUR HAZARD CHARACTERIZATION, THE POTENTIAL ENVIRONMENTAL HAZARD IS: LOW. BASED ON NALCO'S RECOMMENDED PRODUCT APPLICATION AND THE PRODUCT'S CHARACTERISTICS, THE POTENTIAL ENVIRONMENTAL EXPOSURE IS: HIGH.

SECTION 13 TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES: PRODUCT IS NOT REGULATED DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT.

FEDERAL REGULATIONS:

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
BASED ON OUR HAZARD EVALUATION, THIS PRODUCT IS NOT HAZARDOUS.

CERCLA, 40 CFR 117, 302:
NOTIFICATION OF SPILLS OF THIS PRODUCT IS NOT REQUIRED.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED IN APPENDIX A AND B AS AN EXTREMELY HAZARDOUS SUBSTANCE.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
OUR HAZARD EVALUATION HAS FOUND THAT THIS PRODUCT IS NOT HAZARDOUS UNDER 29 CFR 1910.1200.

UNDER SARA 311 AND 312, THE EPA HAS ESTABLISHED THRESHOLD QUANTITIES FOR THE REPORTING OF HAZARDOUS CHEMICALS. THE CURRENT THRESHOLDS ARE: 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY (TPQ), WHICHEVER IS LOWER, FOR

EXTREMELY HAZARDOUS SUBSTANCES AND 10,000 POUNDS FOR ALL OTHER HAZARDOUS CHEMICALS.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS ON THE LIST OF TOXIC CHEMICALS.

TOXIC SUBSTANCES CONTROL ACT (TSCA):
THE CHEMICAL INGREDIENTS IN THIS PRODUCT ARE ON THE 8(B) INVENTORY LIST (40 CFR 710).

FOOD AND DRUG ADMINISTRATION (FDA) FEDERAL FOOD, DRUG AND COSMETIC ACT:
WHEN USE SITUATIONS NECESSITATE COMPLIANCE WITH FDA REGULATIONS, THIS PRODUCT IS ACCEPTABLE UNDER 21 CFR 176.180 - COMPONENTS OF PAPER AND PAPERBOARD IN CONTACT WITH DRY FOOD.

U. S. DEPARTMENT OF AGRICULTURE (USDA):
USDA INSPECTION AND GRADING PROGRAMS - FOOD SAFETY AND INSPECTION SERVICE:
THIS PRODUCT IS AUTHORIZED BY USDA FOR USE IN FEDERALLY INSPECTED MEAT AND POULTRY PLANTS. AUTHORIZED USES ARE UNDER CATEGORY G5, G7.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
CONSULT SECTION 11 FOR RCRA CLASSIFICATION.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (FORMERLY SEC. 307), 40 CFR 116 (FORMERLY SEC. 311):
NONE OF THE INGREDIENTS ARE SPECIFICALLY LISTED.

CLEAN AIR ACT, SEC. 111 (40 CFR 60), SEC. 112 (40 CFR 61, 1990 AMENDMENTS), SEC. 611 (40 CFR 82, CLASS I AND II OZONE DEPLETING SUBSTANCES):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS COVERED BY THE CLEAN AIR ACT.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:
THIS PRODUCT CONTAINS ETHYLENE OXIDE, KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE EFFECTS, AS AN IMPURITY OR RESIDUE.

MICHIGAN CRITICAL MATERIALS:
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED ON THE MICHIGAN CRITICAL MATERIALS REGISTER.

STATE RIGHT TO KNOW LAWS:
THE FOLLOWING INGREDIENT(S) ARE DISCLOSED FOR COMPLIANCE WITH STATE RIGHT TO KNOW LAWS:

POLYGLYCOL TRADE SECRET

INTERNATIONAL REGULATIONS:

THIS IS NOT A WHMIS CONTROLLED PRODUCT UNDER THE HOUSE OF COMMONS OF CANADA BILL C-70.

SECTION 15 ADDITIONAL INFORMATION

NALCO INTERNAL NUMBER 308644

SECTION 16 RISK CHARACTERIZATION

DUE TO OUR COMMITMENT TO PRODUCT STEWARDSHIP, WE HAVE EVALUATED THE HUMAN AND ENVIRONMENTAL HAZARDS AND EXPOSURES OF THIS PRODUCT. BASED ON OUR RECOMMENDED USE OF THIS PRODUCT, WE HAVE CHARACTERIZED THE PRODUCT'S GENERAL RISK. THIS INFORMATION SHOULD PROVIDE ASSISTANCE FOR YOUR OWN RISK MANAGEMENT PRACTICES. WE HAVE EVALUATED OUR PRODUCT'S RISK AS FOLLOWS:

* THE HUMAN RISK IS: LOW.

* THE ENVIRONMENTAL RISK IS: LOW.

ANY USE INCONSISTENT WITH NALCO'S RECOMMENDATIONS MAY AFFECT OUR RISK CHARACTERIZATION. OUR SALES REPRESENTATIVE WILL ASSIST YOU TO DETERMINE IF YOUR PRODUCT APPLICATION IS CONSISTENT WITH OUR RECOMMENDATIONS. TOGETHER WE CAN IMPLEMENT AN APPROPRIATE RISK MANAGEMENT PROCESS.

THIS PRODUCT MATERIAL SAFETY DATA SHEET PROVIDES HEALTH AND SAFETY INFORMATION. THE PRODUCT IS TO BE USED IN APPLICATIONS CONSISTENT WITH OUR PRODUCT LITERATURE. INDIVIDUALS HANDLING THIS PRODUCT SHOULD BE INFORMED OF THE RECOMMENDED SAFETY PRECAUTIONS AND SHOULD HAVE ACCESS TO THIS INFORMATION. FOR ANY OTHER USES, EXPOSURES SHOULD BE EVALUATED SO THAT APPROPRIATE HANDLING PRACTICES AND TRAINING PROGRAMS CAN BE ESTABLISHED TO ENSURE SAFE WORKPLACE OPERATIONS. PLEASE CONSULT YOUR LOCAL SALES REPRESENTATIVE FOR ANY FURTHER INFORMATION.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, DOULL, J., KLAASSEN, C. D., AND ADMUR, M. O., EDS., MACMILLIAN PUBLISHING COMPANY, INC., N. Y., 4TH EDITION, 1996.

CHEMICAL HAZARDS OF THE WORKPLACE, PROCTOR, N. H., AND HUGHES, J. P., EDS., J. P. LIPINCOTT COMPANY, N.Y., 3RD EDITION, 1991.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, SAX, N. IRVING, ED., VAN NOSTRAND REINHOLD COMPANY, N.Y., 9TH EDITION, 1996.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, GENEVA: WORLD HEALTH ORGANIZATION, INTERNATIONAL AGENCY FOR RESEARCH ON CANCER.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, CLAYTON, G. D., CLAYTON, F. E., EDS., JOHN WILEY AND

, N. Y., 4TH EDITION, VOL. 2 A-F, 1994.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, CENTER FOR DISEASE CONTROL, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, 1983 SUPPLEMENT OF 1981-1982 EDITION, VOL. 1-3, OH, 1984.

TITLE 29 CODE OF FEDERAL REGULATIONS PART 1910, SUBPART Z, TOXIC AND HAZARDOUS SUBSTANCES, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE WORKROOM ENVIRONMENT WITH INTENDED CHANGES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, OH.

PREPARED BY: WILLIAM S. UTLEY, PhD., DABT, MANAGER, PRODUCT SAFETY

DATE CHANGED: 09/06/96

DATE PRINTED: 10/14/96

NALCO CHEMICAL COMPANY
ONE NALCO CENTER
NAPERVILLE, ILLINOIS 60563-1198
AREA 708-305-1000

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT: NALCO 71-D5 ANTIFOAM

EMERGENCY TELEPHONE NUMBER:
MEDICAL (800) 462-5378 (24 HOURS)
(800) I-M-ALERT

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: NALCO 71-D5 ANTIFOAM

DESCRIPTION:
A BLEND OF FATTY ACIDS, POLYGLYCOLS, POLYGLYCOL ESTERS, IN HYDROCARBON OIL

NFPA 704M/HMIS RATING:
1/1 HEALTH
1/1 FLAMMABILITY
0/0 REACTIVITY
0 OTHER

0=INSIGNIFICANT
1=SLIGHT
2=MODERATE
3=HIGH
4=EXTREME

SECTION 2 HAZARDOUS INGREDIENTS

OUR HAZARD EVALUATION HAS IDENTIFIED THE FOLLOWING CHEMICAL INGREDIENT(S) AS HAZARDOUS UNDER OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200. CONSULT SECTION 14 FOR THE NATURE OF THE HAZARD(S).

INGREDIENT(S)	CAS #	APPROX.%
KEROSENE	8008-20-6	10-20
PARAFFIN WAX	8002-74-2	1-5
STRAIGHT RUN MIDDLE DISTILLATES	64741-44-2	40-70

SECTION 3 PRECAUTIONARY LABEL INFORMATION

CAUTION:
MAY CAUSE IRRITATION TO SKIN AND EYES. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. AVOID PROLONGED OR REPEATED BREATHING OF VAPOR. USE WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY.

EMPTY CONTAINERS MAY CONTAIN RESIDUAL PRODUCT. DO NOT REUSE CONTAINER UNLESS PROPERLY RECONDITIONED.

SECTION 4 FIRST AID INFORMATION

EYES: FLUSH WITH WATER FOR 15 MINUTES. CALL A PHYSICIAN.

SKIN:
WASH THOROUGHLY WITH SOAP AND RINSE WITH WATER. CALL A PHYSICIAN.

INGESTION: DO NOT INDUCE VOMITING. GIVE WATER. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. TREAT SYMPTOMS. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
BASED ON THE INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITION.

CAUTION:
IF UNCONSCIOUS, HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: EYE, SKIN, INHALATION

EYE CONTACT: CAN CAUSE MILD, SHORT-LASTING IRRITATION.

SKIN CONTACT: CAN CAUSE MILD, SHORT-LASTING IRRITATION.

INHALATION: PROLONGED INHALATION OF VAPOR MAY BE HARMFUL.

SYMPTOMS OF EXPOSURE:

ACUTE:
INHALATION OF HIGH CONCENTRATIONS OF PRODUCT CAN CAUSE NAUSEA, DIZZINESS, VOMITING, STUPOR OR UNCONSCIOUSNESS.

CHRONIC:
PROLONGED SKIN CONTACT WITH PRODUCT CAN CAUSE DRY SKIN AND DEFATTING RESULTING IN IRRITATION AND DERMATITIS.

AGGRAVATION OF EXISTING CONDITIONS:
A REVIEW OF AVAILABLE DATA DOES NOT IDENTIFY ANY WORSENING OF EXISTING CONDITIONS.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES:
ACUTE TOXICITY STUDIES HAVE BEEN CONDUCTED ON THIS PRODUCT. THE RESULTS ARE

SHOWN BELOW.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = GREATER THAN 15,380 MG/KG

ACUTE DERMAL TOXICITY (ALBINO RABBITS): LD50 = GREATER THAN 3,038 MG/KG

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS):
SKIN IRRITATION INDEX DRAIZE RATING: 3.1/8.0 MODERATELY IRRITATING

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):
EYE IRRITATION INDEX DRAIZE RATING: 6.0/110.0 MINIMAL IRRITATION

HUMAN HAZARD CHARACTERIZATION: BASED ON OUR HAZARD CHARACTERIZATION,
THE POTENTIAL HUMAN HAZARD IS: LOW

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: PALE STRAW

FORM: LIQUID

ODOR: FAINTLY HYDROCARBON

DENSITY: 6.9-7.5 LBS/GAL.

SOLUBILITY IN WATER: INSOLUBLE

SPECIFIC GRAVITY: 0.83-0.90 @ 77 DEGREES F ASTM D-1298

VISCOSITY: 13.8 CPS @ 80 DEGREES F ASTM D-2983

FREEZE POINT: 45 DEGREES F ASTM D-1177

POUR POINT: 45 DEGREES F ASTM D-97

FLASH POINT: 260 DEGREES F (PMCC) ASTM D-93

VAPOR PRESSURE:
0.6 MM HG @ 68 DEGREES F
1.3 MM HG @ 100 DEGREES F
4.4 MM HG @ 150 DEGREES F ASTM D-323

NOTE: THESE PHYSICAL PROPERTIES ARE TYPICAL VALUES FOR THIS PRODUCT.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: 260 DEGREES F (PMCC) ASTM D-93

EXTINGUISHING MEDIA:
BASED ON THE NFPA GUIDE, USE DRY CHEMICAL, FOAM, CARBON DIOXIDE OR OTHER EXTINGUISHING AGENT SUITABLE FOR CLASS B FIRES. USE WATER TO COOL CONTAINERS

EXPOSED TO FIRE. FOR LARGE FIRES, USE WATER SPRAY OR FOG, THOROUGHLY DRENCHING THE BURNING MATERIAL.

UNUSUAL FIRE AND EXPLOSION HAZARD:
CONTAINERS EXPOSED IN A FIRE SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILDUP LEADING TO A RUPTURE.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY:
AVOID CONTACT WITH STRONG OXIDIZERS (EG. CHLORINE, PEROXIDES, CHROMATES, NITRIC ACID, PERCHLORATES, CONCENTRATED OXYGEN, PERMANGANATES) WHICH CAN GENERATE HEAT, FIRES, EXPLOSIONS AND THE RELEASE OF TOXIC FUMES.

STORAGE:
PRODUCT SHOULD BE STORED AT TEMPERATURES ABOVE 65 DEGREES F. IF SOLIDIFIED, WARM SLOWLY (DO NOT USE LIVE STEAM) TO 70-100 DEGREES F. FREEZING DOES NOT REDUCE THE EFFICIENCY OF THE PRODUCT WHEN PROPERLY RELIQUIFIED.

THERMAL DECOMPOSITION PRODUCTS:
IN THE EVENT OF COMBUSTION CO, CO2 MAY BE FORMED. DO NOT BREATHE SMOKE OR FUMES. WEAR SUITABLE PROTECTIVE EQUIPMENT.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION:
RESPIRATORY PROTECTION IS NOT NORMALLY NEEDED SINCE THE VOLATILITY AND TOXICITY ARE LOW. IF SIGNIFICANT VAPORS, MISTS OR AEROSOLS ARE GENERATED, WEAR A NIOSH APPROVED OR EQUIVALENT RESPIRATOR.

FOR LARGE SPILLS, ENTRY INTO LARGE TANKS, VESSELS OR ENCLOSED SMALL SPACES WITH INADEQUATE VENTILATION, A POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

VENTILATION: GENERAL VENTILATION IS RECOMMENDED.

PROTECTIVE EQUIPMENT:
USE IMPERMEABLE GLOVES AND CHEMICAL SPLASH GOGGLES WHEN ATTACHING FEEDING EQUIPMENT OR DOING MAINTENANCE.

THE AVAILABILITY OF AN EYE WASH FOUNTAIN AND SAFETY SHOWER IS RECOMMENDED.

IF CLOTHING IS CONTAMINATED, REMOVE CLOTHING AND THOROUGHLY WASH THE AFFECTED AREA. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

HUMAN EXPOSURE CHARACTERIZATION:
BASED ON NALCO'S RECOMMENDED PRODUCT APPLICATION AND OUR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT, THE POTENTIAL HUMAN EXPOSURE IS: MODERATE.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (800) I-M-ALERT OR (800) 462-5378.

SPILL CONTROL AND RECOVERY:

SMALL LIQUID SPILLS:
CONTAIN WITH ABSORBENT MATERIAL, SUCH AS CLAY, SOIL OR ANY COMMERCIALLY AVAILABLE ABSORBENT. SHOVEL RECLAIMED LIQUID AND ABSORBENT INTO RECOVERY OR SALVAGE DRUMS FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

LARGE LIQUID SPILLS:
DIKE TO PREVENT FURTHER MOVEMENT AND RECLAIM INTO RECOVERY OR SALVAGE DRUMS OR TANK TRUCK FOR DISPOSAL. REFER TO CERCLA IN SECTION 14.

DISPOSAL:
IF THIS PRODUCT BECOMES A WASTE, IT DOES NOT MEET THE CRITERIA OF A HAZARDOUS WASTE AS DEFINED UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40 CFR 261, SINCE IT DOES NOT HAVE THE CHARACTERISTICS OF SUBPART C, NOR IS IT LISTED UNDER SUBPART D.

AS A NON-HAZARDOUS LIQUID WASTE, IT SHOULD BE SOLIDIFIED WITH STABILIZING AGENTS (SUCH AS SAND, FLY ASH, OR CEMENT) SO THAT NO FREE LIQUID REMAINS BEFORE DISPOSAL TO AN INDUSTRIAL WASTE LANDFILL. A NON-HAZARDOUS LIQUID WASTE CAN ALSO BE INCINERATED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 12 ENVIRONMENTAL INFORMATION

BIOLOGICAL OXYGEN DEMAND (5-DAY BOD): 102,440 MG/L

CHEMICAL OXYGEN DEMAND (COD): 308,460 MG/L

TOTAL ORGANIC CARBON (TOC): 195,870 MG/L

AQUATIC DATA:

RESULTS BELOW ARE BASED ON THE PRODUCT.

96 HOUR STATIC ACUTE LC50 TO BLUEGILL SUNFISH = 121 PPM

TOXICITY RATING: SLIGHTLY TOXIC

96 HOUR STATIC ACUTE LC50 TO RAINBOW TROUT = 310 MG/L 96 HOUR NO OBSERVED EFFECT CONCENTRATION IS LESS THAN 78 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: SLIGHTLY TOXIC

48 HOUR STATIC ACUTE LC50 TO DAPHNIA MAGNA = 220 MG/L

48 HOUR STATIC ACUTE EC50 TO DAPHNIA MAGNA = 130 MG/L

48 HOUR NO OBSERVED EFFECT CONCENTRATION IS 16 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: TOXIC

96 HOUR STATIC ACUTE LC50 TO FATHEAD MINNOW = 190 MG/L

96 HOUR NO OBSERVED EFFECT CONCENTRATION IS LESS THAN 100 MG/L BASED ON NO MORTALITY OR ABNORMAL EFFECTS.

TOXICITY RATING: SLIGHTLY TOXIC

IF RELEASED INTO THE ENVIRONMENT, SEE CERCLA IN SECTION 14.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION: BASED ON OUR HAZARD CHARACTERIZATION, THE POTENTIAL ENVIRONMENTAL HAZARD IS: LOW.
BASED ON NALCO'S RECOMMENDED PRODUCT APPLICATION AND THE PRODUCT'S CHARACTERISTICS, THE POTENTIAL ENVIRONMENTAL EXPOSURE IS: HIGH.

SECTION 13 TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES: PRODUCT IS NOT REGULATED DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT.

FEDERAL REGULATIONS:

OSHA'S HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
BASED ON OUR HAZARD EVALUATION, THE FOLLOWING INGREDIENTS IN THIS PRODUCT ARE HAZARDOUS AND THE REASONS ARE SHOWN BELOW.

KEROSENE - SKIN IRRITANT
STRAIGHT RUN MIDDLE DISTILLATES - SKIN IRRITANT

KEROSENE (OIL MIST) = TWA 5 MG/M3, STEL 10 MG/M3 ACGIH/TLV
PARAFFIN WAX (FUME) = TWA 2 MG/M3 ACGIH/TLV
STRAIGHT RUN MIDDLE DISTILLATES (OIL MIST) = TWA 5 MG/M3, STEL 10 MG/M3 ACGIH/TLV

KEROSENE (OIL MIST) = TWA 5 MG/M3 OSHA/PEL
STRAIGHT RUN MIDDLE DISTILLATES (OIL MIST) = TWA 5 MG/M3 OSHA/PEL

KEROSENE = TWA 100 PPM TLV
MANUFACTURER'S RECOMMENDATION

CERCLA, 40 CFR 117, 302:

NOTIFICATION OF SPILLS OF THIS PRODUCT IS NOT REQUIRED.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986
(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED IN APPENDIX A AND B AS AN EXTREMELY HAZARDOUS SUBSTANCE.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
OUR HAZARD EVALUATION HAS FOUND THIS PRODUCT TO BE HAZARDOUS. THE PRODUCT SHOULD BE REPORTED UNDER THE FOLLOWING EPA HAZARD CATEGORIES:

XX IMMEDIATE (ACUTE) HEALTH HAZARD

-- DELAYED (CHRONIC) HEALTH HAZARD
-- FIRE HAZARD
-- SUDDEN RELEASE OF PRESSURE HAZARD
-- REACTIVE HAZARD

UNDER SARA 311 AND 312, THE EPA HAS ESTABLISHED THRESHOLD QUANTITIES FOR THE REPORTING OF HAZARDOUS CHEMICALS. THE CURRENT THRESHOLDS ARE: 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY (TPQ), WHICHEVER IS LOWER, FOR EXTREMELY HAZARDOUS SUBSTANCES AND 10,000 POUNDS FOR ALL OTHER HAZARDOUS CHEMICALS.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS ON THE LIST OF TOXIC CHEMICALS.

TOXIC SUBSTANCES CONTROL ACT (TSCA):
THE CHEMICAL INGREDIENTS IN THIS PRODUCT ARE ON THE 8(B) INVENTORY LIST (40 CFR 710).

FOOD AND DRUG ADMINISTRATIONS (FDA) FEDERAL FOOD, DRUG AND COSMETIC ACT:
WHEN USE SITUATIONS NECESSITATE COMPLIANCE WITH FDA REGULATIONS, THIS PRODUCT IS ACCEPTABLE UNDER 21 CFR 176.210 DEFOAMING AGENTS USED IN THE MANUFACTURE OF PAPER AND PAPERBOARD.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
CONSULT SECTION 11 FOR RCRA CLASSIFICATION.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 (FORMERLY SEC. 307), 40 CFR 116 (FORMERLY SEC. 311):
NONE OF THE INGREDIENTS ARE SPECIFICALLY LISTED.

CLEAN AIR ACT,
SEC. 111 (40 CFR 60), SEC. 112 (40 CFR 61, 1990 AMENDMENTS),
SEC. 611 (40 CFR 82, CLASS I AND II OZONE DEPLETING

SUBSTANCES):
THIS PRODUCT CONTAINS THE FOLLOWING INGREDIENTS COVERED BY THE CLEAN AIR ACT:

POLYPROPYLENE GLYCOL - SECTION 111

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:
THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS WHICH REQUIRE WARNING UNDER CALIFORNIA PROPOSITION 65.

MICHIGAN CRITICAL MATERIALS:
THIS PRODUCT DOES NOT CONTAIN INGREDIENTS LISTED ON THE MICHIGAN CRITICAL MATERIALS REGISTER.

STATE RIGHT TO KNOW LAWS:
THE FOLLOWING INGREDIENT(S) ARE DISCLOSED FOR COMPLIANCE WITH STATE RIGHT TO KNOW LAWS:

KEROSENE	8008-20-6
OXYALKYLATE	TRADE SECRET
PARAFFIN WAX	8002-74-2
POLYGLYCOL	TRADE SECRET
POLYGLYCOL ACID ESTER	TRADE SECRET
STRAIGHT RUN MIDDLE DISTILLATE	64741-44-2

INTERNATIONAL REGULATIONS:

THIS IS A WHMIS CONTROLLED PRODUCT UNDER THE HOUSE OF COMMONS OF CANADA BILL C-70 (CLASS D2B). THE PRODUCT CONTAINS THE FOLLOWING SUBSTANCE(S), FROM THE INGREDIENT DISCLOSURE LIST OR HAS BEEN EVALUATED BASED ON ITS TOXICOLOGICAL PROPERTIES, TO CONTAIN THE FOLLOWING HAZARDOUS INGREDIENT(S):

CHEMICAL NAME	CAS #	% CONCENTRATION RANGE
KEROSENE	8008-20-6	10-20
PARAFFIN WAX	8002-74-2	1-5
STRAIGHT RUN MIDDLE DISTILLATES	64741-44-2	40-70

SECTION 15 ADDITIONAL INFORMATION

NONE

SECTION 16 RISK CHARACTERIZATION

DUE TO OUR COMMITMENT TO PRODUCT STEWARDSHIP, WE HAVE EVALUATED THE HUMAN AND ENVIRONMENTAL HAZARDS AND EXPOSURES OF THIS PRODUCT. BASED ON OUR

RECOMMENDED USE OF THIS PRODUCT, WE HAVE CHARACTERIZED THE PRODUCT'S GENERAL RISK. THIS INFORMATION SHOULD PROVIDE ASSISTANCE FOR YOUR OWN RISK MANAGEMENT PRACTICES. WE HAVE EVALUATED OUR PRODUCT'S RISK AS FOLLOWS:

* THE HUMAN RISK IS: LOW.

* THE ENVIRONMENTAL RISK IS: LOW.

ANY USE INCONSISTENT WITH NALCO'S RECOMMENDATIONS MAY AFFECT OUR RISK CHARACTERIZATION. OUR SALES REPRESENTATIVE WILL ASSIST YOU TO DETERMINE IF YOUR PRODUCT APPLICATION IS CONSISTENT WITH OUR RECOMMENDATIONS. TOGETHER WE CAN IMPLEMENT AN APPROPRIATE RISK MANAGEMENT PROCESS.

THIS PRODUCT MATERIAL SAFETY DATA SHEET PROVIDES HEALTH AND SAFETY INFORMATION. THE PRODUCT IS TO BE USED IN APPLICATIONS CONSISTENT WITH OUR PRODUCT LITERATURE. INDIVIDUALS HANDLING THIS PRODUCT SHOULD BE INFORMED OF THE RECOMMENDED SAFETY PRECAUTIONS AND SHOULD HAVE ACCESS TO THIS INFORMATION. FOR ANY OTHER USES, EXPOSURES SHOULD BE EVALUATED SO THAT APPROPRIATE HANDLING PRACTICES AND TRAINING PROGRAMS CAN BE ESTABLISHED TO INSURE SAFE WORKPLACE OPERATIONS. PLEASE CONSULT YOUR LOCAL SALES REPRESENTATIVE FOR ANY FURTHER INFORMATION.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, PB 33-135855, 1983.

CASARETT AND DOULL'S TOXICOLOGY, THE BASIC SCIENCE OF POISONS, DOULL, J., KLAASSEN, C. D., AND ADMUR, M. O., EDS., MACMILLIAN PUBLISHING COMPANY, INC., N. Y., 4TH EDITION, 1996.

CHEMICAL HAZARDS OF THE WORKPLACE, PROCTOR, N. H., AND HUGHES, J. P., EDS., J. P. LIPINCOTT COMPANY, N.Y., 3RD EDITION, 1991.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, SAX, N. IRVING, ED., VAN NOSTRAND REINHOLD COMPANY, N.Y., 9TH EDITION, 1996.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, GENEVA: WORLD HEALTH ORGANIZATION, INTERNATIONAL AGENCY FOR RESEARCH ON CANCER.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, CLAYTON, G. D., CLAYTON, F. E., EDS., JOHN WILEY AND SONS, N. Y., 4TH EDITION, VOL. 2 A-F, 1994.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PUBLIC HEALTH SERVICE, CENTER FOR DISEASE CONTROL, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, 1983 SUPPLEMENT OF 1981-1982 EDITION, VOL. 1-3, OH, 1984.

TITLE 29 CODE OF FEDERAL REGULATIONS PART 1910, SUBPART Z, TOXIC AND HAZARDOUS SUBSTANCES, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE

WORKROOM ENVIRONMENT WITH INTENDED CHANGES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, OH.

INFORMATION ON THIS MSDS HAS CHANGED. THE CHANGES ARE INDICATED BY ASTERISKS ON THE RIGHT SIDE OF ONLY THE CHANGED SECTIONS. THIS IS AN UPDATED MSDS AS REQUIRED BY OSHA'S HAZARD COMMUNICATION RULE 29 CFR 1910.1200.

PREPARED BY: WILLIAM S. UTLEY, PHD., DABT, MANAGER, PRODUCT SAFETY

DATE CHANGED: 01/23/96
DATE PRINTED: 07/04/96

NALCO CHEMICAL COMPANY
ONE NALCO CENTER
NAPERVILLE, ILLINOIS 60563-1198
AREA 708-305-1000

THE REPRODUCTION OF

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811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
MAR 09 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator WFS
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site Compressoe sites
2. Management Facility Destination KEY DISPOSAL	6. Transporter KEY
3. Address of Facility Operator #345 CR 3500 AZTEC NM MAIL P.O. Box 900 FARMINGTON 87499	8. State NM
7. Location of Material (Street Address or ULSTR) SEE 4ST	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

WASH WATER MIXED WITH RAIN WATER

MAR 2000 RECEIVED OIL CON. DIV DIST. 3

YEAR 2000 Analysis

Estimated Volume 1000 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: Michael O'Neill Waste Management Facility Authorized Agent TITLE: MGR DATE: 3-7-00

TYPE OR PRINT NAME: _____ TELEPHONE NO. _____

(This space for State Use)

APPROVED BY: Denny G. Foust TITLE: Geologist DATE: 3/8/00

APPROVED BY: Martyne J. Kieling TITLE: Environmental Geologist DATE: 3/17/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
PRODUCTION OPERATORS, INC. 4000 Lomas Street Farmington, NM 87401	KEY ENERGY P.O. Box 900 Farmington, NM 87499

3. Originating Site (name): Location of the Waste (Street address &/or ULSTR):
29-6 #2, 29-6 #3, 29-6 #4, 29-7, 30-5, 30-6, 31-6,32-7, 32-8 #2, 32-8 #3, 32-9, Aztec, Carracas, Cedar Hill, Coyote Springs, Decker Junction, Hart Mt., Horse Canyon, Kernaghan, La Cosa, Manzanares, Middle Mesa, Moore, N-30, Navajo, PLA-9, Pipkin, Pump Mesa, Simms Mesa, Trunks A,B,C,F,L,M,T, CDPS ,Laguna Mesa, Martinez Draw
Attach list of originating sites as appropriate Quintana Mesa, 31-6 WPX

4. Source and Description of Waste

RAIN WATER & WASH WATER

I, Buster Gaston representative for:
(Print Name)
Production Operators, Inc. do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

___ EXEMPT oilfield waste

XX NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (check appropriate items):

___ MSDS Information
___ RCRA Hazardous Waste Analysis
___ Chain of Custody
___ Other (description):

Name (Original Signature): Buster Gaston

Title: Operations Coordinator

Date: 02-25-2000

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

February 28, 2000

Mr, Bill Beevers
Williams field Service, Inc.
Manzanares District
Bloomfield, NM 87413

Phone: (505) 320-4642
Fax: (505) 632-4781

Project No.: 97050
Job No.: 705004

Dear Mr. Beevers,

Enclosed are the analytical results for one water sample collected from the location designated as "Horse Canyon". One water sample was collected by WFS designated personnel on 2/22/00, and received by the Envirotech laboratory on 2/22/00 for TCLP W/O Herbicides and Pesticides.

The sample was documented on Envirotech Chain of Custody No. 7699 and assigned Laboratory No. G875 (Waste Water) for tracking purposes. The sample was analyzed 2/24/00 - 2/28/00 using USEPA or equivalent methods.

Should you have any questions or require additional information, please do not hesitate to contact us at (505) 632-0615.

Respectfully submitted,
Envirotech, Inc.

Christine M. Walters
Laboratory Coordinator / Environmental Scientist

enc.

CMW/cmw

C:/files/labreports/WFS.wpd

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Lab ID#:	G875	Date Sampled:	02-22-00
Sample Matrix:	Water	Date Received:	02-22-00
Preservative:	Cool	Date Analyzed:	02-24-00
Condition:	Cool and Intact	Chain of Custody:	7699

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 6.26**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*
Reference:	40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.
Comments:	**Horse Canyon CDP.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-23-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	**ND**	**0.0001**	**0.2**
1,1-Dichloroethene	**ND**	**0.0001**	**0.7**
2-Butanone (MEK)	**0.0176**	**0.0001**	**200**
Chloroform	**ND**	**0.0001**	**6.0**
Carbon Tetrachloride	**ND**	**0.0001**	**0.5**
Benzene	**0.145**	**0.0001**	**0.5**
1,2-Dichloroethane	**ND**	**0.0001**	**0.5**
Trichloroethene	**ND**	**0.0003**	**0.5**
Tetrachloroethene	**ND**	**0.0005**	**0.7**
Chlorobenzene	**ND**	**0.0003**	**100**
1,4-Dichlorobenzene	**ND**	**0.0002**	**7.5**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	**98%**
	Bromofluorobenzene	**99%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-28-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	1.17	0.020	200
p,m-Cresol	1.11	0.040	200
2,4,6-Trichlorophenol	0.491	0.020	2.0
2,4,5-Trichlorophenol	0.065	0.020	400
Pentachlorophenol	0.454	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	98%
	2,4,6-Tribromophenol	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Extracted:	N/A
Preservative:	Cool	Date Analyzed:	02-28-00
Condition:	Cool and Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**0.047**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**0.039**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**97%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Horse Canyon CDP.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC
LEACHING PROCEDURE
TRACE METAL ANALYSIS

Client:	Williams Field Services	Project #:	705004
Sample ID:	Waste Water	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	02-22-00
Chain of Custody:	7699	Date Received:	02-22-00
Sample Matrix:	Water	Date Analyzed:	02-24-00
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Analysis Needed:	TCLP metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Level (mg/L)
Arsenic	**0.194**	**0.001**	**5.0**
Barium	**0.146**	**0.001**	**21**
Cadmium	**0.099**	**0.001**	**0.11**
Chromium	**0.072**	**0.001**	**0.60**
Lead	**0.087**	**0.001**	**0.75**
Mercury	**0.004**	**0.001**	**0.025**
Selenium	**ND**	**0.001**	**5.7**
Silver	**0.037**	**0.001**	**0.14**

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, December 1996.

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission SW-846, USEPA. December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Horse Canyon CDP.**

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-25-00
Laboratory Number:	02-23-TCV	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-23-00
Condition:	N/A	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	ND	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	ND	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	100%
	Bromofluorobenzene	100%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-23-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Detection Limits (mg/L)	Percent Difference
Vinyl Chloride	ND	ND	0.0001	0.0%
1,1-Dichloroethene	ND	ND	0.0001	0.0%
2-Butanone (MEK)	0.0176	0.0174	0.0001	1.1%
Chloroform	ND	ND	0.0001	0.0%
Carbon Tetrachloride	ND	ND	0.0001	0.0%
Benzene	0.145	0.146	0.0001	0.7%
1,2-Dichloroethane	ND	ND	0.0001	0.0%
Trichloroethene	ND	ND	0.0003	0.0%
Tetrachloroethene	ND	ND	0.0005	0.0%
Chlorobenzene	ND	ND	0.0003	0.0%
1,4-Dichlorobenzene	ND	ND	0.0002	0.0%

ND - Parameter not detected at the stated detection limit.

References:
Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-23-00
Condition:	N/A	Date Extracted:	N/A

Parameter	Sample Result (mg/L)	Spike Added (mg/L)	Spiked Sample Result (mg/L)	Det. Limit (mg/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Vinyl Chloride	ND	0.050	0.0495	0.0001	99%	28-163
1,1-Dichloroethene	ND	0.050	0.0494	0.0001	99%	43-143
2-Butanone (MEK)	0.0176	0.050	0.0671	0.0001	99%	47-132
Chloroform	ND	0.050	0.0498	0.0001	100%	49-133
Carbon Tetrachloride	ND	0.050	0.0491	0.0001	98%	43-143
Benzene	0.145	0.050	0.195	0.0001	100%	39-150
1,2-Dichloroethane	ND	0.050	0.0494	0.0001	99%	51-147
Trichloroethene	ND	0.050	0.0494	0.0003	99%	35-146
Tetrachloroethene	ND	0.050	0.0494	0.0005	99%	26-162
Chlorobenzene	ND	0.050	0.0494	0.0003	99%	38-150
1,4-Dichlorobenzene	ND	0.050	0.0494	0.0002	99%	42-143

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for sample G875.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report
Laboratory Blank

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-28-00
Laboratory Number:	02-28-TCA	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-28-00
Condition:	N/A	Analysis Requested:	TCLP

Analytical Results Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	ND	0.020	200
p,m-Cresol	ND	0.040	200
2,4,6-Trichlorophenol	ND	0.020	2.0
2,4,5-Trichlorophenol	ND	0.020	400
Pentachlorophenol	ND	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorophenol	98 %
	2,4,6-tribromophenol	99 %

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Extracted:	N/A
Condition:	Cool & Intact	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Detection Limit (mg/L)	Percent Difference
o-Cresol	1.17	1.16	0.020	1.0%
p,m-Cresol	1.11	1.09	0.040	2.0%
2,4,6-Trichlorophenol	0.491	0.486	0.020	1.0%
2,4,5-Trichlorophenol	0.065	0.064	0.020	1.1%
Pentachlorophenol	0.454	0.450	0.020	0.8%

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8040 Compounds	30.0%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-28-00
Laboratory Number:	02-28-TBN	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	98%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QA/QC Matrix Duplicate Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-28-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	02-28-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Percent Difference	Det. Limit (mg/L)
Pyridine	**ND**	**ND**	**0.0%**	**0.020**
Hexachloroethane	**ND**	**ND**	**0.0%**	**0.020**
Nitrobenzene	**0.047**	**0.047**	**0.0%**	**0.020**
Hexachlorobutadiene	**ND**	**ND**	**0.0%**	**0.020**
2,4-Dinitrotoluene	**0.039**	**0.038**	**3.0%**	**0.020**
HexachloroBenzene	**ND**	**ND**	**0.0%**	**0.020**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Maximum Difference
	8090 Compounds	**30%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for sample G875.**

Analyst

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	C2-24-TCM QA/QC	Date Reported:	02-25-00
Laboratory Number:	G875	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Analysis Requested:	TCLP Metals	Date Analyzed:	02-24-00
Condition:	N/A	Date Extracted:	N/A

Blank & Duplicate Conc. (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.001	0.194	0.195	0.5%	0% - 30%
Barium	ND	ND	0.001	0.146	0.149	2.1%	0% - 30%
Cadmium	ND	ND	0.001	0.099	0.100	1.0%	0% - 30%
Chromium	ND	ND	0.001	0.072	0.073	1.4%	0% - 30%
Lead	ND	ND	0.001	0.087	0.089	2.3%	0% - 30%
Mercury	ND	ND	0.001	0.004	0.004	0.0%	0% - 30%
Selenium	ND	ND	0.001	ND	ND	0.0%	0% - 30%
Silver	ND	ND	0.001	0.037	0.037	0.0%	0% - 30%

Spike Conc. (mg/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	0.500	0.194	0.693	99.9%	80% - 120%
Barium	0.500	0.146	0.65	100.3%	80% - 120%
Cadmium	0.500	0.099	0.598	99.8%	80% - 120%
Chromium	0.500	0.072	0.572	100.0%	80% - 120%
Lead	0.500	0.087	0.588	100.2%	80% - 120%
Mercury	0.050	0.004	0.053	98.1%	80% - 120%
Selenium	0.500	ND	0.498	99.6%	80% - 120%
Silver	0.500	0.037	0.536	99.8%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, Dec. 1996

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission, SW-846, USEPA, December 1996.

Comments: **QA/QC for sample G875.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

7699

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
WFS	Horse Canyon CDP	
Sampler: Bill Beevers	Client No. 705004	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TCLP w/o H2P						Remarks
Glass Waste Water	2/22	14:00	G875	Liquid		✓						TCLP
Glass "	2/22	14:00		Liquid								"
VOA - " "	"	"		"								"
VOA " "	"	"		"								"
Plastic Waste Water	"	"		"								"

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Bill Beevers	2/22/00	15:55	Zora L. Boogard	2/20/00	15:55
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1 Rio Brazos Road
[illegible], NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
FEB 23 2000
Environmental Bureau
Oil Conservation Division

Form C-138
Originated 8/8/95

Submit Original
Plus 1 Copy
to appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator KEY ENERGY
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site YARD
2. Management Facility Destination KEY ENERGY DISPOSAL	6. Transporter Key
3. Address of Facility Operator #345 CR 3500 AZTEC, NM (Phy) (Mail) P.O. Box 900 Farmington NM 87499	8. State NM
7. Location of Material (Street Address or ULSTR)	

9. Circle One:

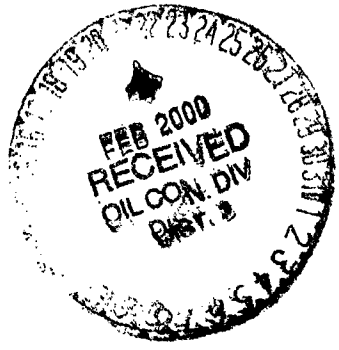
A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

(B.) All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

OILFIELD SERVICE EQUIPMENT WASH WATER



Estimated Volume 1000 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: Michael Talovich TITLE: Manager DATE: 2-21-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TALOVICH TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: Denny G. Foust TITLE: Geologist DATE: 2/21/00

APPROVED BY: Martyne J. Kieling TITLE: Environmental Geologist DATE: 2/23/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
Key Energy Services, Inc. Four Corners Division 5651 US Highway 64 Farmington NM, 84701	Key Energy Services, Inc. Disposal
3. Originating Site: (name): Key Energy Services, Inc. Four Corners Division 5651 US Highway 64 Farmington NM, 84701 (Attach list of origination sites as appropriate)	**Location of the Waste (Street Address &/or ULSTR):** Farmington Facility Waste Water Storage Tank
4. Source and Description of Waste Oilfield Service Equipment Waste Wash Water	

I, **Bob James**, representative for **Key Energy Services, Four Corners Division** do hereby certify that, according to the Resource Conservation and Recovery Act (RECA) and Environmental Protection Agency's July 1988, regulatory determination, the above described waste is:
(Check appropriate classification)

____ **EXEMPT** oilfield waste

__X__ **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification.

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

____ MSDS Information

__X__ RCRA Hazardous Waste Analysis

__X__ Chain of Custody

____ Other (description):

Name (Original Signature): Robert W James

Title: Shop Manager

Date: February 18, 2000

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

February 17, 2000

Mr. Bob James
Key Energy Service, Inc.
P.O. Box 900
Farmington, NM 87499

Phone: (505) 327-4935
Fax: (505) 327-4962
Client No.: 98065-01
Job No.: 806501

Dear Mr.James,

Enclosed are the analytical results for the sample collected from the location designated as "Farmington Facility". One water sample was collected by Key Energy Service personnel on 2/11/00, and received by the Envirotech laboratory on 2/11/00 for TCLP W/O Herbicides and Pesticides.

The sample was documented on Envirotech Chain of Custody No. 7679 and assigned Laboratory No. G836 (Waste Water Tank) for tracking purposes.

The sample was analyzed 2/14/00 through 2/16/00 using USEPA or equivalent methods.

Should you have any questions or require additional information, please do not hesitate to contact us at (505) 632-0615.

Respectfully submitted,
Envirotech, Inc.

Christine M. Walters
Laboratory Coordinator / Environmental Scientist

enc.

CMW/cmw C:/files/labreports/key.wpd

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	Key Energy Services	Project #:	806501
Sample ID:	Waste Water Tank	Date Reported:	02-14-00
Lab ID#:	G836	Date Sampled:	02-11-00
Sample Matrix:	Water	Date Received:	02-11-00
Preservative:	Cool	Date Analyzed:	02-14-00
Condition:	Cool and Intact	Chain of Custody:	7679

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 5.75**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.

Comments: **Farmington Facility.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020 AROMATIC / HALOGENATED VOLATILE ORGANICS

Client:	Key Energy Services	Project #:	806501
Sample ID:	Waste Water Tank	Date Reported:	02-16-00
Laboratory Number:	G836	Date Sampled:	02-11-00
Chain of Custody:	7679	Date Received:	02-11-00
Sample Matrix:	Water	Date Extracted:	NA
Preservative:	Cool	Date Analyzed:	02-14-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	0.0162	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	0.0017	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	98%
	Bromofluorobenzene	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Farmington Facility.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS

Client:	Key Energy Services	Project #:	806501
Sample ID:	Waste Water Tank	Date Reported:	02-16-00
Laboratory Number:	G836	Date Sampled:	02-11-00
Chain of Custody:	7679	Date Received:	02-11-00
Sample Matrix:	Water	Date Extracted:	NA
Preservative:	Cool	Date Analyzed:	02-15-00
Condition:	Cool & Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	7.69	0.020	200
p,m-Cresol	3.54	0.040	200
2,4,6-Trichlorophenol	ND	0.020	2.0
2,4,5-Trichlorophenol	ND	0.020	400
Pentachlorophenol	ND	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	98%
	2,4,6-Tribromophenol	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **Farmington Facility.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics

Client:	Key Energy Services	Project #:	806501
Sample ID:	Waste Water Tank	Date Reported:	02-16-00
Laboratory Number:	G836	Date Sampled:	02-11-00
Chain of Custody:	7679	Date Received:	02-11-00
Sample Matrix:	Water	Date Extracted:	NA
Preservative:	Cool	Date Analyzed:	02-15-00
Condition:	Cool and Intact	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**0.139**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**0.027**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**99%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **Farmington Facility.**

Analyst

Review

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ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS

Client:	Key Energy Services	Project #:	806501
Sample ID:	Waste Water Tank	Date Reported:	02-16-00
Laboratory Number:	G836	Date Sampled:	02-11-00
Chain of Custody:	7679	Date Received:	02-11-00
Sample Matrix:	Water	Date Analyzed:	02-16-00
Preservative:	Cool	Date Extracted:	NA
Condition:	Cool & Intact	Analysis Needed:	TCLP metals

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Level (mg/L)
Arsenic	**0.026**	**0.001**	**5.0**
Barium	**0.033**	**0.001**	**21**
Cadmium	**0.013**	**0.001**	**0.11**
Chromium	**0.027**	**0.001**	**0.60**
Lead	**0.037**	**0.001**	**0.75**
Mercury	**ND**	**0.001**	**0.025**
Selenium	**ND**	**0.001**	**5.7**
Silver	**0.004**	**0.001**	**0.14**

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, December 1996.

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission SW-846, USEPA. December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Farmington Facility.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020
AROMATIC / HALOGENATED
VOLATILE ORGANICS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-16-00
Laboratory Number:	02-14-TCV	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-14-00
Condition:	N/A	Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	ND	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	ND	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	100%
	Bromofluorobenzene	100%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020 AROMATIC / HALOGENATED VOLATILE ORGANICS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	02-16-00
Laboratory Number:	02-11-TCV	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-14-00
Condition:	N/A	Date Extracted:	02-11-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limits (mg/L)
Vinyl Chloride	ND	0.0001	0.2
1,1-Dichloroethene	ND	0.0001	0.7
2-Butanone (MEK)	ND	0.0001	200
Chloroform	ND	0.0001	6.0
Carbon Tetrachloride	ND	0.0001	0.5
Benzene	ND	0.0001	0.5
1,2-Dichloroethane	ND	0.0001	0.5
Trichloroethene	ND	0.0003	0.5
Tetrachloroethene	ND	0.0005	0.7
Chlorobenzene	ND	0.0003	100
1,4-Dichlorobenzene	ND	0.0002	7.5

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	Trifluorotoluene	99%
	Bromofluorobenzene	98%

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020 AROMATIC / HALOGENATED VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-16-00
Laboratory Number:	G810	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-14-00
Condition:	N/A	Date Extracted:	02-11-00

Parameter	Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Detection Limits (mg/L)	Percent Difference
Vinyl Chloride	ND	ND	0.0001	0.0%
1,1-Dichloroethene	ND	ND	0.0001	0.0%
2-Butanone (MEK)	0.0129	0.0129	0.0001	0.0%
Chloroform	ND	ND	0.0001	0.0%
Carbon Tetrachloride	ND	ND	0.0001	0.0%
Benzene	0.0038	0.0038	0.0001	0.0%
1,2-Dichloroethane	ND	ND	0.0001	0.0%
Trichloroethene	ND	ND	0.0003	0.0%
Tetrachloroethene	ND	ND	0.0005	0.0%
Chlorobenzene	ND	ND	0.0003	0.0%
1,4-Dichlorobenzene	ND	ND	0.0002	0.0%

ND - Parameter not detected at the stated detection limit.

References:
Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHODS 8010/8020 AROMATIC / HALOGENATED VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	02-16-00
Laboratory Number:	G810	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Analysis Requested:	TCLP	Date Analyzed:	02-14-00
Condition:	N/A	Date Extracted:	02-11-00

Parameter	Sample Result (mg/L)	Spike Added (mg/L)	Spiked Sample Result (mg/L)	Det. Limit (mg/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Vinyl Chloride	ND	0.050	0.0495	0.0001	99%	28-163
1,1-Dichloroethene	ND	0.050	0.0494	0.0001	99%	43-143
2-Butanone (MEK)	0.0129	0.050	0.0624	0.0001	99%	47-132
Chloroform	ND	0.050	0.0498	0.0001	100%	49-133
Carbon Tetrachloride	ND	0.050	0.0491	0.0001	98%	43-143
Benzene	0.0038	0.050	0.0536	0.0001	100%	39-150
1,2-Dichloroethane	ND	0.050	0.0494	0.0001	99%	51-147
Trichloroethene	ND	0.050	0.0494	0.0003	99%	35-146
Tetrachloroethene	ND	0.050	0.0494	0.0005	99%	26-162
Chlorobenzene	ND	0.050	0.0494	0.0003	99%	38-150
1,4-Dichlorobenzene	ND	0.050	0.0494	0.0002	99%	42-143

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 5030, Purge-and-Trap, SW-846, USEPA, July 1992.
Method 8010, Halogenated Volatile Organic, SW-846, USEPA, Sept. 1994.
Method 8020, Aromatic Volatile Organics, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report
Laboratory Blank

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-16-00
Laboratory Number:	02-15-TCA	Date Sampled:	N/A
Sample Matrix:	2-Propanol	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-15-00
Condition:	N/A	Analysis Requested:	TCLP

Analytical Results Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	ND	0.020	200
p,m-Cresol	ND	0.040	200
2,4,6-Trichlorophenol	ND	0.020	2.0
2,4,5-Trichlorophenol	ND	0.020	400
Pentachlorophenol	ND	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-fluorophenol	98 %
	2,4,6-tribromophenol	99 %

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	02-16-00
Laboratory Number:	02-11-TCA	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	Cool	Date Extracted:	02-11-00
Condition:	Cool & Intact	Date Analyzed:	02-15-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
o-Cresol	ND	0.020	200
p,m-Cresol	ND	0.040	200
2,4,6-Trichlorophenol	ND	0.020	2.0
2,4,5-Trichlorophenol	ND	0.020	400
Pentachlorophenol	ND	0.020	100

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	2-Fluorophenol	98%
	2,4,6-Tribromophenol	99%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8040
PHENOLS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-16-00
Laboratory Number:	G810	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	Cool	Date Extracted:	02-11-00
Condition:	Cool & Intact	Date Analyzed:	02-15-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Detection Limit (mg/L)	Percent Difference
o-Cresol	ND	ND	0.020	0.0%
p,m-Cresol	ND	ND	0.040	0.0%
2,4,6-Trichlorophenol	ND	ND	0.020	0.0%
2,4,5-Trichlorophenol	ND	ND	0.020	0.0%
Pentachlorophenol	ND	ND	0.020	0.0%

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8040 Compounds	30.0%

References: Method 1311, Toxicity Characteristic Leaching Procedure Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 3510, Separatory Funnel Liquid-Liquid Extraction, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8040, Phenols, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	02-16-00
Laboratory Number:	02-15-TBN	Date Sampled:	N/A
Sample Matrix:	Hexane	Date Received:	N/A
Preservative:	N/A	Date Extracted:	N/A
Condition:	N/A	Date Analyzed:	02-15-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**97%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Method Blank	Date Reported:	02-16-00
Laboratory Number:	02-11-TBN	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	Cool	Date Extracted:	02-11-00
Condition:	Cool and Intact	Date Analyzed:	02-15-00
		Analysis Requested:	TCLP

Parameter	Concentration (mg/L)	Det. Limit (mg/L)	Regulatory Limit (mg/L)
Pyridine	**ND**	**0.020**	**5.0**
Hexachloroethane	**ND**	**0.020**	**3.0**
Nitrobenzene	**ND**	**0.020**	**2.0**
Hexachlorobutadiene	**ND**	**0.020**	**0.5**
2,4-Dinitrotoluene	**ND**	**0.020**	**0.13**
HexachloroBenzene	**ND**	**0.020**	**0.13**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Percent Recovery
	2-fluorobiphenyl	**96%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8090
Nitroaromatics and Cyclic Ketones
TCLP Base/Neutral Organics
QA/QC Matrix Duplicate Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	02-16-00
Laboratory Number:	G810	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Preservative:	N/A	Date Extracted:	02-11-00
Condition:	N/A	Date Analyzed:	02-15-00
		Analysis Requested:	TCLP

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Percent Difference	Det. Limit (mg/L)
Pyridine	**ND**	**ND**	**0.0%**	**0.020**
Hexachloroethane	**ND**	**ND**	**0.0%**	**0.020**
Nitrobenzene	**ND**	**ND**	**0.0%**	**0.020**
Hexachlorobutadiene	**ND**	**ND**	**0.0%**	**0.020**
2,4-Dinitrotoluene	**ND**	**ND**	**0.0%**	**0.020**
HexachloroBenzene	**ND**	**ND**	**0.0%**	**0.020**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria	Parameter	Maximum Difference
	8090 Compounds	**30%**

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, July 1992.
Method 3510, Separatory Funnel Liquid-Liquid Extraction, SW-846, USEPA, July 1992.
Method 8090, Nitroaromatics and Cyclic Ketones, SW-846, USEPA, Sept. 1986.

Note: Regulatory Limits based on 40 CFR part 261 Subpart C section 261.24, July 1, 1992.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 1311
TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL ANALYSIS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	02-16-TCM QA/QC	Date Reported:	02-16-00
Laboratory Number:	G810	Date Sampled:	N/A
Sample Matrix:	TCLP Extract	Date Received:	N/A
Analysis Requested:	TCLP Metals	Date Analyzed:	02-16-00
Condition:	N/A	Date Extracted:	N/A

Blank & Duplicate Conc. (mg/L)	Instrument Blank	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	**ND**	**ND**	**0.001**	**0.067**	**0.066**	**1.5%**	**0% - 30%**
Barium	**ND**	**ND**	**0.001**	**0.585**	**0.582**	**0.5%**	**0% - 30%**
Cadmium	**ND**	**ND**	**0.001**	**0.035**	**0.035**	**0.0%**	**0% - 30%**
Chromium	**ND**	**ND**	**0.001**	**0.022**	**0.022**	**0.0%**	**0% - 30%**
Lead	**ND**	**ND**	**0.001**	**0.031**	**0.031**	**0.0%**	**0% - 30%**
Mercury	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**
Selenium	**ND**	**ND**	**0.001**	**0.037**	**0.036**	**2.7%**	**0% - 30%**
Silver	**ND**	**ND**	**0.001**	**0.016**	**0.016**	**0.0%**	**0% - 30%**

Spike Conc. (mg/L)	Sample Conc.	Spike Added	Spike Recovery	Acceptance Range
Arsenic	**0.500**	**0.067**	**0.566**	**99.8%**	**80% - 120%**
Barium	**0.500**	**0.585**	**1.08**	**99.8%**	**80% - 120%**
Cadmium	**0.500**	**0.035**	**0.534**	**99.8%**	**80% - 120%**
Chromium	**0.500**	**0.022**	**0.521**	**99.8%**	**80% - 120%**
Lead	**0.500**	**0.031**	**0.530**	**99.8%**	**80% - 120%**
Mercury	**0.050**	**ND**	**0.049**	**98.0%**	**80% - 120%**
Selenium	**0.500**	**0.037**	**0.535**	**99.6%**	**80% - 120%**
Silver	**0.500**	**0.016**	**0.515**	**99.8%**	**80% - 120%**

ND - Parameter not detected at the stated detection limit.

References: Method 1311, Toxicity Characteristic Leaching Procedure, SW-846, USEPA, Dec. 1996

Methods 3010, 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, USEPA, December 1996.

Methods 6010B Analysis of Metals by Inductively Coupled Plasma-Atomic Emission, SW-846, USEPA, December 1996.

Comments: **QA/QC for samples G810 - G811 and G836.**

Analyst

Review

CHAIN OF CUSTODY RECORD

7679

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
Key Energy Services FRM	Farmington Facility	

Sampler:	Client No.
Bob James	98065-01

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	TCLP w/o H2S						Remarks
Waste water Tank	2-11-00	2:45pm	~~E755~~ G8816	Water	5	✓						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	2-11-00	3:35pm	[signature]	2-11-00	15:35
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

P.O.# 90754
REF # 153.900.8120.4
Must appear on Invoice!

ENVIROTECH INC.
5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

FEB 2000 RECEIVED OIL CON. DIV DIST. 3

Form C-138
Originated 8/8/95

Submit Original Plus 1 Copy to appropriate District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☐ Non-Exempt: ☒	4. Generator COASTAL Chemical
Verbal Approval Received: Yes ☐ No ☒	5. Originating Site YARD
2. Management Facility Destination KEY ENERGY Disposal	6. Transporter Key
3. Address of Facility Operator #345 CR3500 Aztec NM	8. State NM
7. Location of Material (Street Address or ULSTR) YARD #10 RD5911 Farmington NM	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.

B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.

All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Rainwater mixed with small amounts of unused chemicals

Last filed 8-20-99

RECEIVED
FEB 16 2000
Environmental Bureau
Oil Conservation Division

Estimated Volume 150 bbls cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: _____ TITLE: MOR DATE: 2-9-00
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: MICHAEL TAFOYA TELEPHONE NO. 505-334-6186

(This space for State Use)

APPROVED BY: Denny G. Foust TITLE: Geologist DATE: 2/14/00

APPROVED BY: Martyne J. Kieling TITLE: Environmental Geologist DATE: 2/16/00

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address:	2. Destination Name:
COASTAL CHEMICAL CO., INC. #10 RD 5911 FARMINGTON, NM 87401	KEY ENERGY SERVICES 345 RD 3500 AZTEC, NM 87401
3. Originating Site (name): Attach list of originating sites as appropriate	**Location of the Waste (Street address &/or ULSTR):** COASTAL CHEMICAL CO., INC. #10 RD 5911 FARMINGTON, NM 87401
4. Source and Description of Waste RINSE WATER FROM PUMP, HOSES AND TANKS USED TO DELIVER VIRGIN CHEMICALS. ALL CHEMICALS RINSED OUT ARE VIRGIN?UNUSED CHEMICALS. CHEMICALS MAY INCLUDE: ALKANOLAMINE, GLYCOL (TEG & EG) ANTIFREEZE.	

I, MIKE EBERHARD (Print Name) representative for:

COASTAL CHEMICAL CO, INC. do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

___ **EXEMPT** oilfield waste

_XX_ **NON-EXEMPT** oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

_XX_ MSDS Information
___ RCRA Hazardous Waste Analysis
___ Chain of Custody
___ Other (description):

Name (Original Signature): Michael Eberhard

Title: FACILITY MANAGER

Date: 2-9-00

THE REPRODUCTION OF

THE

FOLLOWING

DOCUMENT (S)

CANNOT BE IMPROVED

DUE TO

THE CONDITION OF

THE ORIGINAL

DOW

DOW U.S.A.

The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 55520

Product Name: METHYLDIETHANOLAMINE

Effective Date: 07/12/93 Date Printed: 07/14/93 MSDS:000913

1. INGREDIENTS: (% w/w, unless otherwise noted)

Methyldiethanolamine CAS# 000105-59-9 99%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 464-491F, 240-255C
VAP PRESS: <1 mmHg @ 20C
VAP DENSITY: 4
SOL. IN WATER: Complete
SP. GRAVITY: 1.04-1.06
APPEARANCE: Pale straw liquid.
ODOR: Amine odor.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: 270F, 132C; 269F, 131C
METHOD USED: COC; Setaflash closed cup

FLAMMABLE LIMITS
LFL: Not determined
UFL: Not determined

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large scale fires, alcohol resistant foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run off water. For large scale fires, direct water stream may cause violent frothing, but fine water spray may help control situation.

(Continued on page 2 , over)

* An Operating Unit of The Dow Chemical Company

3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

FIRE & EXPLOSION HAZARDS: Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situation. Fire water run off may be toxic. When using water spray, boil over may occur when the product temperature reaches the boiling point of water (tank type scenarios, not spills).

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective equipment.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) No relevant data.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Possible nitrogen oxides and carbon oxides.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS: Wash small amounts with water. Dike to avoid contamination of sewer system with large amounts. Keep out of sewers, storm drains, surface waters and soil.

DISPOSAL METHOD: ++DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER++. For unused or uncontaminated material, the preferred management options are to send to a licensed recycler, reclaimer, or incinerator. The same management options are recommended for used or contaminated material, although additional evaluation is required. (see, for example, 40 CFR Part 261, "Identification and Listing of Hazardous Waste"). Any disposal practice must be in compliance with federal, state, provincial, and local laws and regulations. Check with appropriate agencies for your location. For additional information, see Section 4 (REACTIVITY DATA) and "REGULATORY INFORMATION".

As a service to its customers, Dow can provide lists of

(Continued on page 3)

5. ENVIRONMENTAL AND DISPOSAL INFORMATION: (CONTINUED)

companies which recycle, reprocess or manage chemicals and companies that recondition used drums. Telephone Dow's Customer Information Center at 800/258-CHEM (2436) for further details.

6. HEALTH HAZARD DATA:

EYE: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if confined or skin is abraded.

SKIN ABSORPTION: A single prolonged skin exposure is not likely to result in absorption of harmful amounts. The LD50 for skin absorption in rabbits is >2000 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD50 for rats is likely between 2000-3980 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion may cause burns of mouth and throat.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

SYSTEMIC & OTHER EFFECTS: No relevant information found.

7. FIRST AID:

EYES: Immediate and continuous irrigation with flowing water for at least 30 minutes is imperative. Prompt medical consultation is essential.

SKIN: Wash off in flowing water or shower. Remove contaminated clothing and wash before reuse.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

(Continued on page 4 , over)

7. FIRST AID: (CONTINUED)

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): None established.

VENTILATION: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Eye wash fountain should be located in immediate work area.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion.

MSDS STATUS: Revised sections 3, 5, 9, and Regulatory Information

For information regarding state/provincial and federal regulations see The Regulatory Information Section.
(R) Indicates a trademark of The Dow Chemical Company

* An Operating Unit of The Dow Chemical Company

REGULATORY INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS

(Continued on page R-2 , over)

REGULATORY INFORMATION (CONTINUED)

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2B

CANADIAN TDG INFORMATION: For guidance, the Transportation of Dangerous Goods Classification for this product is:

Not regulated

MATERIAL SAFETY DATA SHEET
TRIETHYLENE GLYCOL

1 HMIS HEALTH
1 HMIS FLAMMABILITY
0 HMIS REACTIVITY
B HMIS PERSONAL PROTECTI

SECTION 1 - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC
P.O. BOX 820
ABBEVILLE, LA 70511-0820
(318) 893-3862

EMERGENCY PHONE NUMBER... (318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 02/26/90
MANUFACTURER'S NAME..... UNION CARBIDE
DOW CHEMICAL
TEXACO
OXY-PETROCHEMICAL

TRADE NAME..... TRIETHYLENE GLYCOL
CHEMICAL FAMILY..... POLYETHYLENE GLYCOL
CAS NUMBER..... 112-27-6
CHEMICAL FORMULA..... C6H1404

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS #
TRIETHYLENE GLYCOL	99	None Established	112-27-6

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... -7 Deg. C., 19 Deg. F.
VAPOR PRESSURE (mm Hg)... (1 mm
VAPOR DENSITY (Air=1).... 5.2, air = 1
SOLUBILITY IN H2O..... Completely soluble in all proportions
APPEARANCE/ODOR..... Clear, colorless, viscous liquid with slight odor.
SPECIFIC GRAVITY (H2O=1). 1.1 @ 77 Deg. F., 25/25 Deg.C
PH..... N/D

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 350 Deg. F.
LOWER FLAME LIMIT..... 0.9
HIGHER FLAME LIMIT..... 9.2
EXTINGUISH MEDIA..... Use water fog or spray, Alcohol Foam, Dry Powder, Carbon Dioxide (CO2).
UNUSUAL FIRE HAZARD..... Containers may explode from internal pressure if confined to fire. Cool with water. Keep unnecessary people away. Approach fire from upwind side. Avoid breathing smoke, fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... Recommended 87MG/M3 based on Oil Mist.

ROUTES OF ENTRY.	INHALATION?	SKIN?	INGESTION?
	Irritant	Mild Irritant	Irritant

HEALTH HAZARDS..... ACUTE: Vapors or liquid may be irritating to skin, eyes, or mucous membranes. Avoid inhalation or skin/eye contact.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGUL
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. If swallowed do not induce vomiting, get immediate medical attention. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable
CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.
INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials.
DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide
HAZARDOUS POLYMERIZATION. Will not occur
POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.

WASTE DISPOSAL METHOD.... Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION... When ventilation is not adequate, use of NIOSH approved organic vapor gas cartridge respirator is recommended.
VENTILATION..... Required in closed areas
MECHANICAL EXHAUST..... Required in closed areas
LOCAL EXHAUST..... Desired
PROTECTIVE GLOVES..... Wear impervious gloves
EYE PROTECTION..... Use chemical goggles or full face shield.

OTHER PROTECTIVE EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE..... Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil & water contamination.

PRECAUTIONARY MEASURES... Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.

HAZARD CLASS..... Not Regulated
DOT SHIPPING NAME..... Triethylene Glycol
REPORTABLE QUANTITY (RQ). None
UN NUMBER..... None
NA #..... None
PACKAGING SIZE..... N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... NO
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO
EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... None

SARA TPQ..... None
SARA 302..... None
SECTION 313..... No

EPA HAZARD WASTE #..... None
CLEAN AIR..... Yes Section 111
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
(- means less than) - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Glen White, B.I.S., 817-560-4631

MATERIAL SAFETY DATA SHEET
[illegible]

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOME
IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. THE
INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED
BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY TH
COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE
CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE
CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL
REGULATIONS.

MATERIAL SAFETY DATA SHEET
TRIETHLYLENE GLYCOL REPROCESSED

1 HMIS HEALTH
1 HMIS FLAMMABILITY
0 HMIS REACTIVITY
B HMIS PERSONAL PROTECT

SECTION I - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC
P.O. BOX 820
ABBEVILLE, LA 70511-0820
(318) 893-3862
EMERGENCY PHONE NUMBER... (318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 02/26/90
MANUFACTURER'S NAME.....
TRADE NAME..... TRIETHLYLENE GLYCOL REPROCESSED
CHEMICAL FAMILY..... POLYETHYLENE GLYCOL
CAS NUMBER..... 112-27-6
CHEMICAL FORMULA..... C6H1404

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS #
TRIETHYLENE GLYCOL	98	None Established	112-27-6

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... -7 Deg. C., 19 Deg. F.
VAPOR PRESSURE (mm Hg)... (1 mm
VAPOR DENSITY (Air=1).... 5.2, air = 1
SOLUBILITY IN H2O..... Completely soluble in all proportions
APPEARANCE/ODOR..... Light amber color, viscous liquid with slight order
SPECIFIC GRAVITY (H2O=1). 1.1 @ 77 Deg. F., 25/25 Deg.C
PH..... N/D

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 350 Deg. F.
LOWER FLAME LIMIT..... 0.9
HIGHER FLAME LIMIT..... 9.2
EXTINGUISH MEDIA..... Use water fog or spray, Alcohol Foam, Dry Powder, Carbon Dioxide (CO2).
UNUSUAL FIRE HAZARD..... Containers may explode from internal pressure if confined to fire. Cool with water. Keep unnecessary people away. Approach fire from upwind side. Avoid breathing smoke, fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... Recommended 5 MG/M3 based on oil mist.

MATERIAL SAFETY DATA SHEET
TRIETHYLENE GLYCOL, REPROCESSED

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	Irritant	Mild Irritant	Irritant

HEALTH HAZARDS..... ACUTE: Vapors or liquid may be irritating to skin, eyes, or mucous membranes. Avoid inhalation or skin/eye contact.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULAT
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medic attention. Wash clothing before reuse. If swallowed, do not induce vomiting, get immediate medical attention. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable
CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.
INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials.
DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide.
HAZARDOUS POLYMERIZATION. Will not occur
POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material and dispose of in accordance with applicable regulation

WASTE DISPOSAL METHOD.... Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION... When ventilation is not adequate, use of NIOSH approved organic vapor gas cartridge respirator is recommended.
VENTILATION..... Required in closed areas
MECHANICAL EXHAUST..... Required in closed areas
LOCAL EXHAUST..... Desired
PROTECTIVE GLOVES..... Wear impervious gloves
EYE PROTECTION..... Use chemical goggles or full face shield.
OTHER PROTECTIVE EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE..... Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil c water contamination.

PRECAUTIONARY MEASURES... Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.

HAZARD CLASS..... NON HAZARDOUS
DOT SHIPPING NAME..... CHEMICALS, NOS
REPORTABLE QUANTITY (RQ). None
UN NUMBER..... None
NA #..... None
PACKAGING SIZE..... N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... NO
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO
EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... None

SARA TPQ..... None
SARA RQ..... None
SECTION 313..... No

EPA HAZARD WASTE #..... None
CLEANAIR..... Yes Section 111
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
(- means less than) - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Glen White, S.I.S., 817-560-4631

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOM IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. TH INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY T COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIV CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

DOW

Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: GAS/SPEC (R) CS-PLUS SOLVENT ADDITIVE

Product Code: 29451

Effective Date: 06/30/94 Date Printed: 07/25/95 MSD: 002850

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS#	AMOUNT (%w/w)
Proprietary alkylamine		90 to 100%
Water	CAS# 007732-18-5	Max. 4%

3. HAZARDS IDENTIFICATION

EYE: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN CONTACT: Short single exposure may cause skin burns. Prolonged exposure may cause severe skin burns. DOT classification: corrosive.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. Amounts ingested incidental to industrial handling are not likely to cause injury; however ingestion of larger amounts may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion may cause burns of mouth and throat.

INHALATION: At room temperature, exposures to vapors are unlikely due to physical properties; higher temperatures may generate vapor levels sufficient to cause adverse effects.

SYSTEMIC AND OTHER EFFECTS: Repeated excessive exposures may cause liver and kidney effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have

(Continued on page 2 , over)

no effect on the fetus.

4. FIRST AID

EYES: Immediate and continuous irrigation with flowing water for at least 30 minutes is imperative. Prompt medical consultation is essential.

SKIN: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician if irritation persists. Wash clothing before reuse. Destroy contaminated shoes.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: Corrosive. May cause stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLASH POINT: 160F, 71C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: 1.6%
UFL: 19.6%

AUTOIGNITION TEMPERATURE: 350C; 662F

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large-scale fires, alcohol resistant foams are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run-off water.

FIRE AND EXPLOSION HAZARDS: Keep unnecessary people away; isolate

(Continued on page 3)

hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situations. Fire water run-off may be toxic. See environmental section of this MSDS. When using water spray, boil-over may occur when the product temperature reaches the boiling point of water (tank-type scenarios, not spills). See also 'STORAGE AND HANDLING' section of this MSDS.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS: Wash with small amounts of water. Dike to avoid contamination of sewer with large amounts, soak up with absorbent material, scoop into drums.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Will produce flammable vapors above the flash point.

STORAGE:
Store in a tightly closed container, away from sunlight, in a cool, dry and well ventilated area. Keep away from strong acids and oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S): None established.

VENTILATION: Good general ventilation should be sufficient for most conditions.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes. Remove contaminated clothing

(Continued on page 4 , over)

immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of spashes. Eye wash fountain should be located in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	: 306-324F, 152-162C
VAPOR PRESSURE	: <2.5 mmHg @ 20C
VAPOR DENSITY	: 2.6
SOLUBILITY IN WATER	: Complete
SPECIFIC GRAVITY	: 0.93-0.94 @ 20/20C
FREEZING POINT	: -4.5C, 24F
APPEARANCE	: Colorless liquid
ODOR	: Amine

10. STABILITY AND REACTIVITY

STABILITY: (CONDITIONS TO AVOID) Stable, avoid heat, sparks, and open flames.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Acids, strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion may produce carbon dioxide, toxic carbon monoxide and oxides of nitrogen. Unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

ACUTE SKIN: The dermal LD50 has not been determined.

ACUTE INGESTION: The oral LD50 for rats is between 1000 and 2340 mg/kg.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

(Continued on page 5)

No data available at MSDS effective date.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL METHOD: Dispose by incineration in accordance with all local, state, and federal requirements.

14. TRANSPORT INFORMATION

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

(Continued on page 6 , over)

REGULATORY INFORMATION (CONTINUED)

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Proprietary alkylamine		

HMIRA INFORMATION: A claim for exemption from ingredient disclosure has been filed under the Hazardous Materials Information Review Act (Canada). The Hazardous Materials Information Review Commission registry number, and date, assigned to this claim are:

Claim Registry Number: 3499 Filing Date: June 29, 1994

16. OTHER INFORMATION

PRODUCT USE: Gas conditioning solvent.

REVISION INDICATOR: Revised section 15

DOW

The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: GAS/SPEC (R) CS-PLUS SOLVENT

Product Code: 13693

Effective Date: 06/30/94 Date Printed: 01/10/95 MSD: 003430

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Methyldiethanolamine	CAS# 000105-59-9	60-70%
Proprietary Alkylamine		
Water	CAS# 007732-18-5	2.0% MAX

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

****
* Causes severe eye and skin burns. Causes severe burns of the mouth *
* and throat. May be harmful if swallowed. May cause respiratory *
* tract irritation. Combustible liquid and vapor. *
****

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: Due to the pH of the material, it is assumed that exposure may cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

SKIN: Short single exposure may cause severe skin burns. Classified as corrosive according to DOT. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The dermal LD50 has not been determined.

INGESTION: Single dose oral toxicity considered to be low. The oral LD50 for rats is >1000 mg/kg. Small amounts swallowed incidental to normal handling are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration. Ingestion

(Continued on page 2 , over)

may cause burns of mouth and throat. Observations in animals include liver and kidney effects.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:
No relevant information found.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

CANCER INFORMATION:
No relevant information found.

REPRODUCTIVE EFFECTS:
No relevant information found.

4. FIRST AID

EYES: Wash eyes immediately and continuously until assistance arrives for transport to medical facility; wash enroute, if possible. If medical assistance is not immediately available, wash for 30 minutes and seek medical attention immediately.

SKIN: Immediate continued and thorough washing in flowing water for 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

INHALATION: Remove to fresh air if effects occur. Consult physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. Eye irrigation may be necessary for an extneded period of time to remove as much caustic as possible. Duration of irrigation and treatment is at the discretion of medical personnel. May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagoscopic control. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

(Continued on page 3)

FLASH POINT: 192F, 88.9C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: Not established
UFL: Not established

EXTINGUISHING MEDIA: Water fog, carbon dioxide, dry chemical, foam. For large scale fires, alcohol resistant foams are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run off water.

FIRE AND EXPLOSION HAZARDS: Keep unnecessary people away; isolate hazard area and deny unnecessary entry. Highly toxic fumes are released in fire situations. Fire water run off may be toxic. See environmental section of this MSDS. When using water spray, boil over may occur when the product temperature reaches the boiling point of water (tank type scenarios, not spills). See also "storage and handing" section of this MSDS.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS: Wash with small amounts of water. Dike to avoid contamination of sewer with large amounts, soak up with absorbent material, scoop into drums. Keep out of sewers, storm drains, surface waters and soil.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Will produce flammable vapors above the flash

(Continued on page 4 , over)

point.

STORAGE:
Store in a tightly closed container, away from sunlight, in a cool, dry and well ventilated area. Keep away from strong acids and oxidizing materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S): None established.

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RESPIRATORY PROTECTION: If respiratory irritation is experienced, use an approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

EYE PROTECTION: Use chemical goggles. Wear a face shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes. Eye wash fountain should be located in immediate work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	:	183C, 361F
VAPOR PRESSURE	:	0.5 mmHg @ 25C
VAPOR DENSITY	:	3.5
SOLUBILITY IN WATER	:	Complete
SPECIFIC GRAVITY	:	1.01 @ 25/25C
FREEZING POINT	:	-23.1C
APPEARANCE	:	Pale straw liquid
ODOR	:	Amine odor

10. STABILITY AND REACTIVITY

STABILITY: (CONDITIONS TO AVOID) Stable, avoid heat, sparks, and open flames.

(Continued on page 5)

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Acids, strong oxidizers, halogenated hydrocarbons.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion may produce carbon dioxide, toxic carbon monoxide and nitrogen oxides. Unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

MUTAGENICITY
No relevant information found.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

No data available at MSDS effective date.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL METHOD: Do not dump into any sewers, on the ground, or into any body of water. For unused or uncontaminated material, the preferred waste management options are to send to a licensed recycler, reclaimer, or incinerator. The same waste management options are recommended for used or contaminated material, although additional evaluation is required (in the U.S. see for example, 40 CFR, Part 261, "Identification and Listing of Hazardous Waste").

Any disposal practice must be in compliance with federal, state/provincial, and local laws and regulations. State/provincial and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Chemcial additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete or otherwise inappropriate. As a service to its customers, Dow can provide lists of companies which recycle, reprocess or manage chemicals. In the U.S. telephone Dow's Customer Information Center at 800/258-2436 for further details.

14. TRANSPORT INFORMATION

(Continued on page 6 , over)

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on

(Continued on page 7)

REGULATORY INFORMATION (CONTINUED)

certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
PROPRIETARY INGREDIENT	PROPRIETARY	PA1

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

B3 - combustible liquid with a flash point between 37.8C and 93.3C
E - corrosive to metal or skin
Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

- - - - -

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

- - - - -

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Methyldiethanolamine	CAS# 000105-59-9	60-70%
Proprietary Alkylamine		

HMIRA INFORMATION: A claim for exemption from ingredient disclosure has been filed under the Hazardous Materials Information Review Act (Canada). The Hazardous Materials Information Review Commission registry number, and date, assigned to this claim are:

(Continued on page 8 , over)

REGULATORY INFORMATION (CONTINUED)

Claim Number: 3500 Filing Date: June 29, 1994

16. OTHER INFORMATION

MSDS STATUS: Revised section 15

PRODUCT USE: Gas conditioning solvent.

MATERIAL SAFETY DATA SHEET

ETHYLENE GLYCOL

1 HMIS HEALTH
1 HMIS FLAMMABILITY
0 HMIS REACTIVITY
B HMIS PERSONAL PROTECTIO:

SECTION I - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC.
(318) 893-3862
EMERGENCY PHONE NUMBER... (318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 2/06/1996
MANUFACTURER'S NAME..... UNION CARBIDE
DOW CHEMICAL
TEXACO
OXY-PETROCHEMICAL

TRADE NAME..... ETHYLENE GLYCOL
CHEMICAL FAMILY..... GLYCOL
CAS NUMBER..... 107-21-1
CHEMICAL FORMULA..... HOCH2CH2OH

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS #
ETHYLENE GLYCOL	100%	ACGIH CEILING 50ppm	107-21-1

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... 9 DEG F
VAPOR PRESSURE (mm Hg)... 0.12 MMHG @ 25 C
VAPOR DENSITY (Air=1).... 2.14
SOLUBILITY IN H20..... COMPLETELY MISCIBLE
APPEARANCE/ODOR..... COLORLESS LIQUID; PRACTICALLY ODORLESS
SPECIFIC GRAVITY (H20=1). 1.1155 @ 20/20 C
PH..... N/A

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 247 DEG F
LOWER FLAME LIMIT..... N/D
HIGHER FLAME LIMIT..... N/D
EXTINGUISH MEDIA..... Water fog or spray, Foam, Dry Powder, Carbon Dioxide (CO2).
UNUSUAL FIRE HAZARD..... NONE KNOWN Approach fire from upwind side. Avoid breathing smoke ,fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... 50 PPM BASED ON ETHYLENE GLYCOL

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	IRRITANT, POSSIBLY NARCOTIC	Not expected to cause significant health hazard	Ingestion of very large amounts could cause serious injury,or even death.

HEALTH HAZARDS..... ACUTE: Vapors may be irritating to eyes, or mucous membranes. Avoid inhalation or eye contact. CHRONIC: Kidney and liver damage possible. May cause reproductive disorders.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULATED
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact. Symptoms of overexposure: headache, fatigue, nausea, irritation of respiratory tract, dizziness, staggering gait, confusion, unconsciousness.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable

CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.

INCOMPATIBLE MATERIALS... Oxidizers or Oxidizing Materials. Alkaline Materials.

DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide

ZARDOUS POLYMERIZATION. Will not occur

OLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL.....	In case of spillage, absorb with inert material and dispose of in accordance with applicable regulation
WASTE DISPOSAL METHOD....	Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION...	When ventilation is not adequate, use of NIOSH approved organic vapor/acid gas cartridge respirator is recommended.
VENTILATION.....	Required in closed areas
MECHANICAL EXHAUST.....	Required in closed areas
LOCAL EXHAUST.....	Desired
PROTECTIVE GLOVES.....	Wear impervious gloves
EYE PROTECTION.....	Use chemical goggles or full face shield.
OTHER PROTECTIVE EQUIPMENT.....	Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE.....	Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil or water contamination.
PRECAUTIONARY MEASURES...	Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.
HAZARD CLASS.....	Drums - NOT REGULATED Bulk - Class 9
DOT SHIPPING NAME.....	Drum - Ethylene Glycol Bulk - Other regulated substances, liquid, n.o.s. (ethylene glycol)
REPORTABLE QUANTITY (RQ).	5,000 pounds
UN NUMBER.....	None
NA #.....	Drums - None; Bulk - NA3082
PACKAGING SIZE.....	N/A

SECTION X - REGULATORY

EPA ACUTE.....	YES
EPA CHRONIC.....	YES
EPA IGNITABILITY.....	NO
EPA REACTIVITY.....	NO
EPA SUDDEN RELEASE OF PRESSURE.....	NO
CERCLA RQ VALUE.....	5,000 pounds
SARA TPQ.....	None
SARA RQ.....	None
SECTION 313.....	YES, ETHYLENE GLYCOL 107-21-1 100%
EPA HAZARD WASTE #.....	None
CLEANAIR.....	Yes, Section 111 and 1990 Amendments
CLEAN WATER.....	No

FOOT NOTES N/A - not applicable N/D - no data available
< - means less than > - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Joe Hudman, Coastal Chemical Co., Inc. 713-477-6675

IS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOM IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. TH INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY T COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIV CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

MATERIAL SAFETY DATA SHEET

COASTALGUARD 100 ANTIFREEZE/COOLANT

1 HMIS
1 HMIS
0 HMIS
B HMIS

100%

ıc. 713-477-6675

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REGULATIONS. THE
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SECTION I - IDENTIFICATION

DISTRIBUTED BY.....	COASTAL CHEMICAL CO., INC. (318)893-3862
EMERGENCY PHONE NUMBER...	CHEMTREC (800)424-9300
EFFECTIVE DATE.....	2/06/1996
MANUFACTURER'S NAME.....	COASTAL CHEMICAL CO., INC.
TRADE NAME.....	COASTALGUARD 100 ANTIFREEZE/COOLAN
CHEMICAL FAMILY.....	INHIBITED ETHYLENE GLYCOL SOLUTION
CAS NUMBER.....	Blended Product
CHEMICAL FORMULA.....	Blended Product

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)
ETHYLENE GLYCOL	95 %	ACGIH CEILING 50ppm

SECTION III - PHYSICAL DATA

FREEZING POINT (F).....	APPROX. 22 DEG F
VAPOR PRESSURE (mm Hg)...	0.12 MMHG @ 25 C
VAPOR DENSITY (Air=1)....	2.14
SOLUBILITY IN H20.....	COMPLETELY MISCIBLE
APPEARANCE/ODOR.....	YELLOW/GREEN LIQUID; PRACTICALLY OI
SPECIFIC GRAVITY (H20=1).	1.11 typical
PH.....	10.5 - 11.0

SECTION IV - FIRE AND EXPLOSION HAZARD DAT

FLASH POINT.....	APPROX. 247 DEG F
LOWER FLAME LIMIT.....	N/D
HIGHER FLAME LIMIT.....	N/D
EXTINGUISH MEDIA.....	Water fog or spray, Foam, Dry Powde (CO2).
UNUSUAL FIRE HAZARD.....	NONE KNOWN Approach fire from upwin breathing smoke ,fumes, mist or vap downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE.... 50 PPM BASED ON ETHYLENE GLYCOL

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	IRRITANT, POSSIBLY NARCOTIC	Not expected to cause significant health hazard	Ingestion of very large amounts could cause serious injury, or even death.

HEALTH HAZARDS..... ACUTE: Vapors may be irritating to eyes, or mucous membranes. Avoid inhalation or eye contact. CHRONIC: Kidney and liver damage possible. May cause reproductive disorders.

CARCINOGENICITY	NTP?	IARC MONOGRAPHS?	OSHA REGULATED
NO	NO	NO	NO

OVER EXPOSURE EFFECTS.... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact. Symptoms of overexposure: headache, fatigue, nausea, irritation of respiratory tract, dizziness, staggering gait, confusion, unconsciousness.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable
CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.
INCOMPATIBLE MATERIALS... OXIDIZING MATERIALS & OXIDIZERS
DECOMPOSITION PRODUCTS... From fire; Smoke, Carbon dioxide, & Carbon Monoxide
HAZARDOUS POLYMERIZATION. Will not occur
POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.

WASTE DISPOSAL METHOD.... Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION... When ventilation is not adequate, use of NIOSH approved organic vapor/acid gas cartridge respirator is recommended.
VENTILATION..... Required in closed areas
MECHANICAL EXHAUST..... Required in closed areas
LOCAL EXHAUST..... Desired
PROTECTIVE GLOVES..... Wear impervious gloves
EYE PROTECTION..... Use chemical goggles or full face shield.
OTHER PROTECTIVE EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE..... Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil or water contamination.
PRECAUTIONARY MEASURES... Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.
HAZARD CLASS..... Drums - Not Regulated
Bulk - Class 9
DOT SHIPPING NAME..... Drums - COASTALGUARD 100
Bulk - Other regulated substances, liquid, n.o.s. (ethylene glycol)
REPORTABLE QUANTITY (RQ). 5000 pounds
UN NUMBER..... None
NA #..... Drums - None; Bulk - NA3082
PACKAGING SIZE..... N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... YES
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO

EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... 5000 pound for ethylene glycol

SARA TPQ..... None
SARA RQ..... None
SECTION 313..... YES, ETHYLENE GLYCOL 107-21-1 95% (1/1/87)

EPA HAZARD WASTE #..... None
CLEANAIR..... Yes, Section 111 Volatile Organic Compounds & Section 112 Statutory Air Pollutants (1990 Amendments)
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
< - means less than > - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... David Trahan, C.F.T. - 318-898-0001

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMERS IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY THE COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

DOW

Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-Hour Emergency Phone Number: 517-636-4400

Product: DIETHANOLAMINE LOW FREEZING GRADE

Product Code: 21106

Effective Date: 03/01/96 Date Printed: 04/27/96 MSD: 000904

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Diethanolamine	CAS# 000111-42-2	85%
Water	CAS# 007732-18-5	15%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

****
* Colorless liquid. Slight ammonia odor. Causes eye burns. *
****

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause severe irritation with corneal injury.

SKIN: Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if skin is abraded (scratched or cut). A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Not classified as corrosive according to DOT.

INGESTION: Single dose oral toxicity is low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Observations in animals include liver and kidney effects following single oral doses. Ingestion may cause gastrointestinal irritation or ulceration.

(Continued on page 2 , over)

INHALATION: At room temperature, exposures to vapors are minimal due to physical properties; higher temperatures may generate vapor levels sufficient to cause irritation and other effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Results from repeated exposure tests on diethanolamine in laboratory animals include anemia (rats) and effects on kidney (rats and mice) and liver (mice). Heart and nervous system effects were also observed in these animals given exaggerated doses. Changes in other organs, causes of which are nonspecific, were judged secondary to the poor health of the animals due to the extremely high doses of diethanolamine given.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects; other fetal effects occurred only at doses toxic to the mother.

4. FIRST AID

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophagscopic control. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: * None
METHOD USED: Setaflash
AUTOIGNITION TEMPERATURE:

* No flash point observed up to the boiling point. Flash point of

(Continued on page 3)

diethanolamine is 325F, 163C by Setaflash.

FLAMMABILITY LIMITS
LFL: Not determined.
UFL: Not determined.

HAZARDOUS COMBUSTION PRODUCTS:

EXTINGUISHING MEDIA: Water fog, alcohol foam, CO2, dry chemical.

FIRE FIGHTING INSTRUCTIONS: Not available.

PROTECIVE EQUIPMENT FOR FIRE FIGHTERS: Wear self-contained, possitive-pressure breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Clear non-emergency personnel from the area.

PROTECT THE ENVIRONMENT: Do not allow into sewers, on the ground, or into any body of water.

CLEANUP: Use a noncombustible absorbent such as sand and shovel into suitable containers. Do not use sawdust, wood chips or other cullulosic materials to absorb the spill.

7. HANDLING AND STORAGE

HANDLING: Prevent eye and skin contact. Avoid breathing vapors. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the auto-ignition temperature possibly resulting in spontaneous combustion.

STORAGE: Do not store in common area with halogenated materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

PERSONAL PROTECTIVE EQUIPMENT

(Continued on page 4 . over)

EYE/FACE PROTECTION: Use chemical goggles.

SKIN PROTECTION: When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

RESPIRATORY PROTECTION: For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

EXPOSURE GUIDELINE(S): Diethanolamine: ACGIH TLV is 2 mg/m3, skin; OSHA PEL is 3 ppm. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless liquid.
ODOR: Slight ammoniacal odor.
VAPOR PRESSURE: Low.
VAPOR DENSITY: Not determined.
BOILING POINT: 244F, 118C
SOLUBILITY IN WATER: Completely miscible.
SPECIFIC GRAVITY: 1.08 @ 25/4C
FREEZING POINT: 28F, -2C

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: This product should not be heated above 60C in the presence of aluminum due to excessive corrosion and potential chemical reaction releasing flammable hydrogen gas.

INCOMPATIBILITY WITH OTHER MATERIALS: Strong oxidizers, strong acids. Product may potentially react with various halogenated organic solvents, resulting in temperature and/or pressure increases.

HAZARDOUS DECOMPOSITION PRODUCTS: Possible nitrogen oxides.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

(Continued on page 5)

SKIN: The LD50 for skin absorption in rabbits is greater than 8,200 mg/kg (for diethanolamine).

INGESTION: The oral LD50 for rats is greater than 680 mg/kg (for diethanolamine).

MUTAGENICITY: In vitro mutagenicity studies were negative. (for diethanolamine).

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Based largely or completely on data for major component(s). Bioconcentration potential is low (BCF less than 100 or Log Kow less than 3). Log octanol/water patition coefficient (log Kow) is -1.43. Henry's Law Constant (H) is 5.35E-14 atm m3/mol.

DEGRADATION & TRANSFORMATION: Based largely or completely on data for major component(s). Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). 5-Day biochemical oxygen demand (BOD5) is 0.22 p/p. 10-Day biochemical oxygen demand (BOD10) is 0.74 p/p. 20-Day biochemical oxygen demand (BOD20) is 1.20 p/p. Theoretical oxygen demand (ThOD) is calculated to be 2.13 p/p. Inhibitory concentration (IC50) in OECD "Activated Sludge, Respiration Inhibition Test" (Guideline #209) is > 1000 mg/L. Material is ultimately biodegradable. Reaches more than 70% mineralization in OECD test for inherent biodegradability: Zahn-Wellens; 94% DOC removal in 14 days.

ECOTOXICOLOGY: Based largely or completely on data for major component(s). Material is slightly toxic to aquatic organisms on an acute basis (LC50 between 10 and 100 mg/L in most sensitive species). Acute LC50 for fathead minnow (Pimephales promelas) is 1460-1664 mg/L. Acute LC50 for bluegill (Lepomis macrochirus) is 1850-2100 mg/L. Acute LC50 for water flea (Daphnia magna) is 55-306 mg/L. Acute LC50 for the cladoceran Ceriodaphnia dubia is 30-160 mg/L. Acute LC50 for goldfish (Carassius auratus) is 800 to > 5000 mg/L at pH 9.7 and pH 7.0, respectively. Acute LC50 for mosquito fish (Gambusia affinis) is 1400-1800 mg/L.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

(Continued on page 6 , over)

DISPOSAL: Any disposal practice must be in compliance with all federal, state/provincial, and local laws and regulations. State/provincial and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Regulations may also vary in different locations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. None of these waste management options should be considered 'arranging for disposal'.

Do not allow into any sewers, on the ground, or into any body of water.

The preferred waste management option is to send to a properly properly licensed or permitted incinerator.

As a service to its customers, Dow can provide lists of companies which recycle, reprocess, or manage chemicals. In the U.S., telephone Dow's Customer Information Center at 517-832-1556 or 800-258-2436 (U.S.) for further details.

14. TRANSPORT INFORMATION

CANADIAN TDG INFORMATION:
For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

DEPARTMENT OF TRANSPORTATION (D.O.T.):

For DOT regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply

(Continued on page 7)

with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
DIETHANOLAMINE	000111-42-2	86 %

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
DIETHANOLAMINE	000111-42-2	NJ3 PA1 PA3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

(Continued on page 8 , over)

REGULATORY INFORMATION (CONTINUED)

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Category: Chemical Name	CAS#	RQ	% in Product
Diethanolamine	000111-42-2	100 lb	85%

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2B - eye or skin irritant
Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

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CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT (%w/w)
Diethanolamine	CAS# 000111-42-2	85%

16. OTHER INFORMATION

REVISION INDICATOR: Revised section 14.