GW - 115

MONITORING REPORTS

DATE: 1993-2007

Chavez, Carl J, EMNRD

From: Jones, Brad A., EMNRD
Sent: Thursday, March 01, 2007 12:42 PM
To: Chavez, Carl J, EMNRD
Cc: Price, Wayne, EMNRD
Subject: FW: Halliburton-Artesia NM-Analytical & Discharge Plan (GW-115)

FYI... My letter requesting an official modification is awaiting Wayne's review and comments (his In Box). I hope that Stephen does not think this email constitutes a modification submittal. I'll wait for Wayne decision on how and who should address the Hobbs and Lovington sites.

Brad A. Jones
Environmental Engineer
Environmental Bureau
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
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From: Stephen Bailey [mailto:Stephen.Bailey@Halliburton.com]
Sent: Thursday, March 01, 2007 9:31 AM
To: Jones, Brad A., EMNRD
Subject: Halliburton-Artesia NM-Analytical & Discharge Plan

Mr. Jones,
Attached is the analytical for both the manhole and washrack grit.
Also attached is the Discharge plan for Artesia. I've updated the plan, provide a site plan showing the wastewater flow, included the msds on the washrack soap and degreaser we use on the washrack and tool shop. Both the soap and degreaser are Biodegradable. I've also include an updated chemical list to include the Baroid chemicals that we are moving into the facility from our Lovington facility. Is there anything else I need to provide for you?? I'm going to send the analytical to CRI along with another Waste Profile.

The Lovington facility does not have a stand alone discharge plan. When we update the Hobbs discharge plan, Jack Ford instructed me to include Lovington in with the Hobbs discharge plan since all we have at Lovington is sack materials and some drum materials. We had no sumps or wastewater discharges other than sewer.
Do I need to update the Hobbs Discharge Plan to reflect this change???

Please let me know if you need any further information.
Thank You,

Stephen Bailey
Location Manager
505-392-0701-Office
505-392-0745-Fax
505-631-1817-Cell
505-738-1123-Home

Halliburton Energy Services **Facility Inventory**
2311 S. FIRST
ARTESIA, NM

Chemical Name	Health	Flammabil	Reactive	Special	Storage Area	PURPOSE	SAP NUMBER	GOGGLES	FACE SHIELD	RUBBER BOOTS	RUBBER GLOVES	AIR PURIFYING	AIR SUPPLIED	RUBBER APRON	COVERALLS
KA Accelerator					SHOP										
19N	3	3	0	none	Acid Plant	NE Agent	100012276	x	x	x	x	x			x
3M Super Weatherstrip Adhesive					SHOP	Adhesive									
[redacted]	3	0	0	none	Warehouse	Flouride									
[redacted]1															
Acetylene	0	4	2		TOOLS										
ACTION CLEANER DEGREASER					TOOLS						x				
Activator W	0	0	0		Warehouse		100003750								
Adomite Regain	1	0	0	none	Warehouse	Fluid Loss	100003726	x	x		x				x
ADOMITE REGAIN					Warehouse										
AIR DUSTER-BD					E-TECH					x	x	x			x
AIR FORCE CANNED AIR-KAR					E-TECH										
AKTAFLO	2	1	0		Warehouse										
Alchek	3	0	0	none	Warehouse	Buffer	101252393	x	x						
ALDACIDE-G	3	0	0		Drum storage										
Alumi-ReNu	1	3	0	none	Washrack	Cleaning agent	Non-Halliburton	x	x	x	x	x		x	
American Sales Degreaser F-24					WASHRACK					x	x				
American Sales Soap Q-30					WASHRACK										
American sales SOAP	0	1	0		TOOLS										
Ammonium Bicarbonate	2	0	1	none	Warehouse	Additive	13396	x							
[redacted]onium Chloride (Clay [redacted])	1	0	0	none	Warehouse	Clayfix Mat.	100001576	x	x		x	x		x	
AMMONIUM NITRATE	1	0	3	OXIDIZER	Warehouse										
ANHIB II	2	3	0	none	Acid Plant	Corrision Inhibitor	100003821	x	x						
Antifreeze	1	1	0	none	SHOP	Coolant		x	x		x	x	x	x	
APCO water reducible alkyd gloss enamel 24					TOOLS										
AQF-2	1	2	0	none	Acid Plant	Foamer	100003743	x	x		x	x		x	
AQUAGEL	1	0	0		Warehouse										
Aromatic Solvents	3	3	0	none	Acid Plant	Solvent	100003671	x	x						
AS-10	2	1	0	none	Acid Plant	Anti-Sludge Agent	101201450	x	x	x	x	x		x	
AS-5	3	3	0	none	Acid Plant	Anti-Sludge Agent	101203443	x	x	x	x	x	x	x	
Attapulgite	0	0	0	none	Bulk Plant	Suspending Agent	100012204	x				x			
BA-2	2	0	0	none	Warehouse	PH Buffer	100003625	x	x	x	x	x		x	
BA-20					Drum Storage										

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BA-40L	2	0	1	none	Drum Storage	Buffer	100003797	x	x		x	x		x	
BARA DEFOAM	1	2	0		Drum storage										
BARABLOK	1	1	0		Warehouse										
BARABRINE	2	1	0		Warehouse										
BARABUF	1	0	0		Warehouse										
BARACARB 150	1	0	0		Warehouse										
BARACARB 2300	1	0	0		Warehouse										
BARACARB 25	1	0	0		Warehouse										
BARACARB 5	1	0	0		Warehouse										
BARACARB 50	1	0	0		Warehouse										
BARACARB 600	1	0	0		Warehouse										
BARACAT	1	0	0		Warehouse										
BARACOR 100	2	3	0		Warehouse										
BARACOR 95	2	2	0		Warehouse										
BARAFLOC	0	0	0		Drum storage										
BARASCAV L	1	0	1		Warehouse										
BARAKLEAN					Drum Storage										
BARAVIS	0	0	0		Warehouse										
BARAZAN	0	0	0		Warehouse										
BARAZAN D PLUS	0	0	0		Warehouse										
Barite	1	0	0	none	Bulk Plant	Weighting Material	100003680	x							
BAROFIBRE	0	0	0		Warehouse										
BAROID	1	0	0		Warehouse										
BAROLIFT	0	0	0		Warehouse										
BARO-LUBE GOLD SEAL	1	0	0		Drum storage										
BARO-SEAL CLASSIC	0	1	0		Warehouse										
BARO-SEAL COARSE	0	1	0		Warehouse										
BARO-TROL	1	0	0		Drum storage										
BATTERY CLEANER-KAR					E-TECH							x			
BC-30	2	2	0		Not on Site										
BC-140	2	0	0	none	Drum Storage	Cross Linker	100012288	x	x						
BC-200 X-LINKER					Drum storage										
BDF-275	1	0	0		Warehouse										
BDF-302	0	0	0		Warehouse										
BE-3S Solid Biocide	3	1	0	none	Warehouse	Bacteriacide	100003836	x							
BE-5	3	1	0		Bulk Plant		100012230								
BE-5	3	1	0	corrosive	Warehouse										
BE-6	3	1	0	none	Warehouse	Bacteriacide	100003800	x							
Bendix Air Guard	1	3	3	none	SHOP	Methyl Alcohol		x	x						

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Bentonite	1	0	0	none	Bulk Plant	Cement Gel	100003682	x							
BENTONITE					Warehouse										
BICARBONATE OF SODA	0	0	0		Warehouse										
Blaine Ox-Off				corrosive	SHOP										
[redacted]T OFF PLUS- [redacted]TIFIED					E-TECH										
Bowman Dry Moly Lubricant				Flammable	SHOP	Lubricant						x		x	
Brake Fluid	1	1	0	none	SHOP	Brake Fluid		x	x						
Calcium Carbonate	0	0	0	none	Bulk Plant	Additive	100012280	x							
CALCIUM CARBONATE	1	0	0		Warehouse										
Calcium Chloride	1	0	0	none	Bulk Plant	Cmt Accelerator	100005053	x	x						
Calseal	0	0	0	none	Bulk Plant	Cmt Additive	100005051	x	x						
Carbon Dioxide Gas					SHOP										
CARBONOX					Warehouse										
Carcoal Lighter Fluid					SHOP										
CAT-3, ACTIVATOR					Drum storage										
CAUSTIC POTASH	3	0	2		Warehouse										
CAUSTIC SODA	3	0	1		Warehouse										
Caustic Soda 50%	3	0	1		Drum Storage		120004070								
CCA-H2S					Warehouse										
CIDER FIBER					Warehouse										
Cement Class C	1	0	0	ALK	Bulk Plant	Cement	100012205	x							
Cement-Standard Fine	1	0	0	ALK	Bulk Plant	Cement	100012229	x			x	x		x	
CFR-3	1	0	0	none	Bulk Plant	Cmt Fric Reducer	100003653	x				x			
[redacted]mpion Spray on				Flammable	SHOP	Paint						x			
[redacted]AMPION SPRAY PAINT					TOOLS										
Chem-Elast 5200 Basecoat					SHOP	Paint									
CHEVRON DEXRON-III/MERCON ATM					Washrack										
Chevron Grease					SHOP	Lubricant									
Chevron Rock Drill Oil 80W-90					WASHRACK							x			
Chevron SAE 15W-40 OIL					WASHRACK							x			
CITRA SOLV -55 GAL					LP-WASHBAY	Asphalt Remover	Non-Halliburton								
CITRIC ACID ANHYDROUS					Drum storage										
CL-22M					Drum storage										

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CL-23					Drum storage									
CL-28M X-Linker	1	0	0	none	Drum Storage	Cross Linker	100003880	x	x					
CL-30	1	0	0		Drum Storage		100003808							
CL-31 X-Linker	3	0	1	corrosive	Drum Storage	Cross Linker	100007866	x	x					
Class H/Premium	1	0	0	none	Bulk Plant	Cement	100003687	x						
CLA-STA XP	1	0	0	none	Drum Storage	Clay Stabilizer	100003733	x	x					
[redacted]ayFix II	3	1	1	none	Acid Plant	Clay Stabilizer	100003729	x	x					
Clear Pvc Solvent Cement					SHOP	Adhesive								
CON DET	1	0	0		Drum storage									
COOL BORE TAPPING COMPOUND-DYNA SYSTEMS					E-TECH									
COTTONSEED HULLS	0	0	0		Warehouse									
Crown Paint Thinner				Flammable	SHOP									
Cylinder, Compressed Gas					SHOP									
DA-30	2	0	0		Drum storage									
DA-320	2	0	0		Drum storage									
DA-330	3	1	0		Drum storage									
DA-370	1	0	0		Drum storage									
DA-40	2	1	1		Drum storage									
D-Air 3000	2	1	0	none	Bulk Plant	Defoamer	101007446	x			x		x	x
D-Air 3000L	2	1	0	none	Bulk Plant	Defoamer	101007444	x			x	x		x
DEFOAMER HP					Drum storage									
DEFOAMER W300					Drum storage									
De-Icer	3	3	0		TOOLS						x	x		x
[redacted]SCO CHROME FREE					Drum storage									
DEXTRID LT	0	0	0		Warehouse									
Diacel LWL	1	1	0	none	Warehouse	Fluid Loss								
Diamond Seal	1	1	0		Bulk Plant		101278096				x	x		x
DIAMOND SEAL	1	1	0		Warehouse									
Diesel	1	2	0	none	Fuel Tanks	Fuel		x						
DIESEL	*0*	*2*	*0*		*Drum storage*									
DOC-3	3	3	0	Flammable	Warehouse	Surfactant								
BORIC ACID					Warehouse									
DRILL STARCH	0	0	0		Warehouse									
DRILLING PAPER					Warehouse									
DRISPAC REGULAR	0	0	0		Warehouse									
DRY GRAPHITE-KAR					E-TECH							x		

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Dual Spacer	1	0	0	none	Bulk Plant	Spacer	100003654	x	x		x	x		x	
Dual Spacer B	1	0	0	none	Bulk Plant	Spacer	100003665	x	x	x	x	x		x	
Dual Spacer LXP	1	0	0	none	Bulk Plant	Spacer	100003878	x	x						
[redacted]RA HOLD ADHESIVE					E-TECH										
[redacted]ATHENE PLUS-CERTIFIED					E-TECH										
DYLEK PS-CERTIFIED					E-TECH										
Econolite-Additive	0	0	0	none	Bulk Plant	Cmt Extender	100001580	x	x						
ELECTA COAT-CERTIFIED					E-TECH										
ELECTRO SOLVE-KAR					E-TECH										
EMERALD FLOOR CLEANER					TOOLS										
EMERALD NEUTRAL CLEANER					E-TECH										
EMULSIFIER-142	1	2	0		Drum Storage										
Engine Paint-Gray					SHOP	Paint									
ENVIRO CHEM C-200					Drum Storage										
ENVIRO-TORQ	1	3	0		Drum Storage										
EPL 50					Drum Storage										
ER-25					Drum Storage										
EXPEDITE 225-Clean Up					Drum Storage										
EXPEDITE 225-Comp A					Drum Storage										
EXPEDITE 225-Comp B					Drum Storage										
[redacted]GLIDE	1	1	0		Drum Storage										
[redacted]MUL	2	1	0		Drum Storage										
EZ-FLO	2	2	1		Bulk Plant		101209283				x				
EZ-MUD	2	1	0		Drum Storage										
EZ-SPOT	2	3	0		Drum Storage										
F-10	1	0	0	none	SHOP	Alkaline Detergent		x			x				
FA200					Drum Storage										
FDP-S769-05					Warehouse										
FDP-S798-05					Warehouse										
FDP-S819-05					Warehouse										
FDP-W658-02	0	0	0	none	Warehouse	Conformance									
FDP-W659-02	1	1	0	none	Warehouse	Conformance									
FE-1A-ACETIC ACID					Acid Plant										
FE-2 CRITIC ACID	1	1	0	none	Acid Plant	Iron Control	100001615	x	x						
FE-5A IRON CONTROL	3	0	0	none	Drum Storage	Reducing Agent	100003811	x	x						

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FE-8	3	1	1	none	Acid Plant	Reducing Agent	101246191	x	x						
FerChek	1	0	0	none	Drum Storage	Iron Control	100012191	x							
FerChek A Red Label	0	0	0	none	Drum Storage	Iron Control	100012226	x	x						
FIBER SEAL					Warehouse										
FILTER-CHEK	0	0	0		Drum Storage										
FLEX MASTER [illegible]HESIVE					E-TECH										
[illegible]C 2000					Drum Storage										
Flocele	1	0	0	none	Bulk Plant	Lost Circulation	100005049	x	x		x	x			
Floor Sweep					TOOLS						x	x			
FLOWZAN					drum storage										
FLUID-SILICONE-DIMETHYL					SHOP						x	x			
Form-A-Gasket Sealant					SHOP	Sealant									
Formlast Spray Adhesive					SHOP	Adhesive									
FR-26LC					Drum Storage										
FR-38	2	0	0	none	SHOP	Cooling Agent		x	x						
FRONT PLUG	0	0	0		Warehouse										
Furniture polish	1	1	1		TOOLS										
Gasket Remover	2	4	0	none	SHOP	remover		x	x						
Gasstop	1	0	0	none	Bulk Plant	Cement Additive									
GASPERM 1000					Warehouse										
GBW-3	1	1	0	Lab	Warehouse	Breaker	100001577	x			x	x		x	
GBW-30	1	1	0	none	Warehouse	Breaker	101237068	x			x	x		x	
Gel-Sta	1	0	0	none	Drum Storage	Stabilizer	100012769	x							
[illegible]ELTONE	1	0	0		Not on Site										
[illegible]sonite	0	1	1	none	Bulk Plant	Circulation	100003700	x			x	x			
Glass cleaner					TOOLS										
GLASS CLEANER					SHOP										
Gloss Hi Solid Paint					SHOP	Paint					x	x		x	
Gloss Oil Base Paint					SHOP	Paint									
Gloss White Areosol Paint	1	4	3		SHOP	Paint									
Gloss Yellow Paint					SHOP	Paint				x	x	x			x
GRAPHITE	1	0	0		SHOP										
GRAY SPRAY PAINT-KAR					E-TECH					x	x				
Gunk Liquid Wrench					TOOLS						x	x		x	x
HAI-404M					Drum Storage										

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HAI-85M					Drum Storage										
HAI-GE	4	3	0	none	Acid Plant	Corrision Inhibitor	101201449	x	x		x	x		x	
HAI-OS	2	3	0	none	Acid Plant	Corrision Inhibitor	100064251	x	x						
Halad-322	0	0	0	none	Bulk Plant	Fluid Loss	100003646	x							
[illegible]ad-344	3	1	0	none	Bulk Plant	Fluid Loss	100003670	x							
[illegible]d-413	1	1	0	none	Bulk Plant	Fluid Loss	100003738	x							
Halad-447	1	0	0	none	Bulk Plant	Fluid Loss	100003799	x							
Halad-9	0	0	0	none	Bulk Plant	Fluid Loss	100001617	x			x	x		x	
Halas-23	1	0	0		Bulk Plant		101209204				x				
H-800 H2S SCAVENGER					Drum Storage										
HC-2	2	1	0	none	Acid Plant	Foamer/Surfact	100012218	x	x		x				
Heavy Duty Glass Cleaner	2	4	0	none	SHOP	Glass Cleaner		x	x		x				
HI TECH CONTACT CLEANER-BD					E-TECH										
HII-124B	2	0	1	none	Drum Storage	Intensifier	100012752					x			
HII-124C	1	0	0	none	Drum Storage	Intensifier	100012245	x	x			x			
HII-500M	2	0	0	none	Drum Storage	Intensifier									
HMP Link	1	0	0	none	Drum Storage	Initiator	101279442	x	x						
HPH BREAKER					Warehouse										
HR-12	1	0	0		Bulk Plant		100005057								
HR-25	1	0	0	none	Drum Storage	Additive	100003756	x							
HR-4	1	0	0		Bulk Plant		100005056								
HR-5	1	0	0	none	Bulk Plant	Cmt Retarder	100005050	x							
HR-6	1	0	0	none	Bulk Plant	cement retarder					x				
HR-601	1	1	0		Bulk Plant		101328348								
[illegible]7	0	1	0	none	Bulk Plant	Cmt Retarder	100005055	x			x	x	x	x	x
[illegible]drochloric Acid,22	3	0	1	corrosive	Acid Plant	Solvent	100001614	x	x	x	x	x	x	x	x
HYDROGEL					Warehouse										
HYG-3	1	1	0	none	Warehouse	Acid Buffer	100001583	x	x	x	x		x		x
HY-SEAL	0	0	0		Warehouse										
IMPERMEX	0	0	0		Warehouse										
Int. Harvestor Red Areosol Paint	1	4	3		SHOP	Paint						x			
INVERMUL	2	1	0		Warehouse										
ISOPROPANOL					E-TECH							x			
Isopropyl Alcohol					E-TECH							x			
K33	1	0	0	none	Warehouse	Oxy. Scavenger	100012753	x							
K-34	0	0	0	none	Warehouse	Oil Breaker	100001574	x	x		x	x		x	
K-35	2	0	0	none	Warehouse	Buffer	100001575	x			x				
K-38	1	0	0	none	Warehouse	PH Buffer	100003629	x	x						

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K-42					Warehouse		100012197								
KCL					Warehouse										
KCL Potassium Chloride	1	0	0	none	Warehouse	Clay Control	100001585	x							
LAP-1	0	2	0	none	Bulk Plant	Cmt Fluid Loss	100012766	x	x		x	x		x	
Latex 2000 Cement Addt	1	0	0	none	Drum Storage	Cmt Additive	100012261	x	x						
LGC-35 ZD B					Acid Plant										
[redacted]C-35 CBM+					Acid Plant										
[redacted]ght Machinery Gray Areosol Paint	1	4	3		SHOP	Paint						x			
LIME	1	0	0		Warehouse										
Lime-Hydrated	0	0	0	none	Warehouse	Component	100005052	x	x	x	x	x			x
Limoene	2	2	0		SHOP						x	x	x	x	
LIQUID ELECTRICAL TAPE-KAR					E-TECH						x	x		x	
Liquid Nails					SHOP	Adhesive									
LIQUI-VIS	1	0	0		Drum Storage										
LOC TITE THREAD LOCKER					E-TECH										
LOLOSS	1	0	0		Drum Storage										
LoSurf-300	1	4	0	none	Acid Plant	Non-emulsifier	100003655	x	x						
LO-SURF 300 M					Drum Storage										
LUBRA-BEADS	0	0	0		Drum Storage										
MA-100D	0	0	0	none	Warehouse	Gelling Agent					x	x		x	
MA-17	2	0	0	none	Acid Plant	Cross Linker	100009936	x	x						
Macropoxy HS Hardner					SHOP										
MAGMA FIBRE	0	0	0		Warehouse										
Marine Yellow Coating					SHOP	Paint					x	x			
[redacted]AX SEAL	1	0	0		Warehouse										
MDL-4 LUBRICANT-KAR					E-TECH							x			
Medium Acrylic Lacquer Thinner					SHOP							x			
Methanol	1	3	0	none	Acid Plant	Solvent	100001611	x	x			x			
MF-1	0	0	0	none	Warehouse	Thinner	100001622	x							
MF-55					Warehouse										
MICATEX COARSE\FINE	1	0	0		Warehouse										
Micro Fly Ash	1	0	0	none	Bulk Plant	Cement Additive	100003824	x							
Micro Matrix	1	0	0	none	Bulk Plant	Cement	100003770	x							
Microbond Additive	1	0	0	none	Bulk Plant	Expansive Additive	100003669	x	x						
MO-67	1	0	0	none	Drum Storage	My-T-Oil Gel	100003693	x	x						

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Chemical Name	Health	Flammabil	Reactive	Special	Storage Area	PURPOSE	SAP NUMBER	GOGGLES	FACE SHIELD	RUBBER BOOTS	RUBBER GLOVES	AIR PURIFYING	AIR SUPPLIED	RUBBER APRON	COVERALLS
Morflo III	2	3	0	none	Acid Plant	Surfactant	100003881	x	x		x	x		x	
MOTOR OIL	0	1	0		SHOP										
MSA-III	3	3	0	none	Acid Plant	Corrosion Inh.	101232906	x	x						
Multi purpose Lithium Grea	0	1	0		TOOLS										
Muriatic Acid	3	0	0		TOOLS						x	x	x		
[redacted]SOL-A	2	2	0	Lab	Acid Plant	Mutual Solvent	100001636	x	x		x	x	x		
NAPA Prem Starting Fluid					SHOP	Starting Fluid					x	x	x		
Non-Chlorinated Brake Cleaner	3	1	1	none	SHOP	Solvent		x	x						
N-PLEX	3	0	1		Warehouse										
N-VIS	0	0	0		Warehouse										
NXS LUBE					Drum Storage										
N-ZYME 3					Warehouse										
One Stroke	3	1	0	none	SHOP	Gasket remover		x	x						
OPTIFLO THE					Warehouse										
Optiflo-II	1	1	1	Oxidizer	Warehouse	Delayed Breaker	100003789	x	x						
Optiflo-III	1	0	1	Oxidizer	Warehouse	Delayed Breaker	100003801	x	x						
Optiflo-LT	1	0	0	none	Warehouse	Delayed Breaker	100012269	x	x						
ORBIT CLEANER					E-TECH										
OYSTER SHELL					Warehouse										
OXIDE RED	1	0	0		Bulk Plant										
OXOL II Oxidant	2	0	1	none	Bulk Plant	Pre-flush	100003712	x			x		x		
Oxygen	3	0	0		TOOLS						x	x		x	
PAC L	0	0	0		Warehouse										
[redacted]C R	0	0	0		Warehouse										
[redacted]RACHEK 160					Drum Storage										
Parasperse	3	3	0	none	Acid Plant	Paraffin Dispersant	100012782	x	x						
PB penetrating catalyst	2	2	0		TOOLS										
PEN 88M	2	2	0	none	Acid Plant	High Temp Surfact	100003819	x	x						
Penetrating Oil					SHOP	Lubricant				x			x	x	
PHENO SEAL	1	0	0		drum storage										
Pipe Cleaner					SHOP	Cleaner									
PIPE SEALANT-BOWMAN					E-TECH										
PLUG-GIT	0	0	0		Warehouse										
POL-E-FLAKE					Warehouse										
POLYAC	1	0	0		Warehouse										
POLYOL-HM	1	1	0		Warehouse										
POTASSIUM ACETATE					Warehouse										

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POTASSIUM CHLORIDE	1	0	0		Warehouse										
Pozmix A Flyash	1	0	0	none	Bulk Plant	Cmt Additive	100003690	x			x		x		
PROPYLENE GLYCOL					SHOP										
Protex-All	2	2	0	none	Acid Plant	Scale Inhibitor	100012251	x	x						
RHODAMINE RED LQ DYE					Warehouse										
Quick Dry Kilz					SHOP	Paint									
Quick Starting Fluid Cylinder					SHOP						x			x	
QUIK-GEL	1	0	0		Warehouse										
Red Iron Oxide Primer	1	4	3		SHOP	Paint					x		x	x	
Regular Unleaded Gasoline					SHOP	Fuel				x	x				

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KA Accelerator					SHOP										
19N	3	3	0	none	Acid Plant	NE Agent	100012276	x	x	x	x	x			x
3M Super Weatherstrip Adhesive					SHOP	Adhesive									
ARF	3	0	0	none	Warehouse	Flouride									
[illegible]-1															
Acetylene	0	4	2		TOOLS										
ACTION CLEANER DEGREASER					TOOLS						x				
Activator W	0	0	0		Warehouse		100003750								
Adomite Regain	1	0	0	none	Warehouse	Fluid Loss	100003726	x	x		x				x
ADOMITE REGAIN					Warehouse										
AIR DUSTER-BD					E-TECH					x	x	x			x
AIR FORCE CANNED AIR-KAR					E-TECH										
AKTAFLO	2	1	0		Warehouse										
Alchek	3	0	0	none	Warehouse	Buffer	101252393	x	x						
ALDACIDE-G	3	0	0		Drum storage										
Alumi-ReNu	1	3	0	none	Washrack	Cleaning agent	Non-Halliburton	x	x	x	x	x		x	
American Sales Degreaser F-24					WASHRACK					x	x				
American Sales Soap Q-30					WASHRACK										
American sales SOAP	0	1	0		TOOLS										
Ammonium Bicarbonate	2	0	1	none	Warehouse	Additive	13396	x							
[illegible]monium Chloride (Clay	1	0	0	none	Warehouse	Clayfix Mat.	100001576	x	x		x	x		x	
AMMONIUM NITRATE	1	0	3	OXIDIZER	Warehouse										
ANHIB II	2	3	0	none	Acid Plant	Corrision Inhibitor	100003821	x	x						
Antifreeze	1	1	0	none	SHOP	Coolant		x	x		x	x	x	x	
APCO water reducible alkyd gloss enamel 24					TOOLS										
AQF-2	1	2	0	none	Acid Plant	Foamer	100003743	x	x		x	x		x	
AQUAGEL	1	0	0		Warehouse										
Aromatic Solvents	3	3	0	none	Acid Plant	Solvent	100003671	x	x						
AS-10	2	1	0	none	Acid Plant	Anti-Sludge Agent	101201450	x	x	x	x	x		x	
AS-5	3	3	0	none	Acid Plant	Anti-Sludge Agent	101203443	x	x	x	x	x	x	x	
Attapulgite	0	0	0	none	Bulk Plant	Suspending Agent	100012204	x				x			
BA-2	2	0	0	none	Warehouse	PH Buffer	100003625	x	x	x	x	x		x	
BA-20					Drum Storage										

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BA-40L	2	0	1	none	Drum Storage	Buffer	100003797	x	x		x	x		x	
BARA DEFOAM	1	2	0		Drum storage										
BARABLOK	1	1	0		Warehouse										
BARABRINE	2	1	0		Warehouse										
BARABUF	1	0	0		Warehouse										
BARACARB 150	1	0	0		Warehouse										
BARACARB 2300	1	0	0		Warehouse										
BARACARB 25	1	0	0		Warehouse										
BARACARB 5	1	0	0		Warehouse										
BARACARB 50	1	0	0		Warehouse										
BARACARB 600	1	0	0		Warehouse										
BARACAT	1	0	0		Warehouse										
BARACOR 100	2	3	0		Warehouse										
BARACOR 95	2	2	0		Warehouse										
BARAFLOC	0	0	0		Drum storage										
BARASCAV L	1	0	1		Warehouse										
BARAKLEAN					Drum Storage										
BARAVIS	0	0	0		Warehouse										
BARAZAN	0	0	0		Warehouse										
BARAZAN D PLUS	0	0	0		Warehouse										
Barite	1	0	0	none	Bulk Plant	Weighting Material	100003680	x							
BAROFIBRE	0	0	0		Warehouse										
BAROID	1	0	0		Warehouse										
BAROLIFT	0	0	0		Warehouse										
BARO-LUBE GOLD SEAL	1	0	0		Drum storage										
BARO-SEAL CLASSIC	0	1	0		Warehouse										
BARO-SEAL COARSE	0	1	0		Warehouse										
BARO-TROL	1	0	0		Drum storage										
BATTERY CLEANER-KAR					E-TECH							x			
BC-30	2	2	0		Not on Site										
BC-140	2	0	0	none	Drum Storage	Cross Linker	100012288	x	x						
BC-200 X-LINKER					Drum storage										
BDF-275	1	0	0		Warehouse										
BDF-302	0	0	0		Warehouse										
BE-3S Solid Biocide	3	1	0	none	Warehouse	Bacteriacide	100003836	x							
BE-5	3	1	0		Bulk Plant		100012230								
BE-5	3	1	0	corrosive	Warehouse										
BE-6	3	1	0	none	Warehouse	Bacteriacide	100003800	x							
Bendix Air Guard	1	3	3	none	SHOP	Methyl Alcohol		x	x						

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Bentonite	1	0	0	none	Bulk Plant	Cement Gel	100003682	x							
BENTONITE					Warehouse										
BICARBONATE OF SODA	0	0	0		Warehouse										
Blaine Ox-Off				corrosive	SHOP										
[illegible]LT OFF PLUS-[illegible]TIFIED					E-TECH										
Bowman Dry Moly Lubricant				Flammable	SHOP	Lubricant						x		x	
Brake Fluid	1	1	0	none	SHOP	Brake Fluid		x	x						
Calcium Carbonate	0	0	0	none	Bulk Plant	Additive	100012280	x							
CALCIUM CARBONATE	1	0	0		Warehouse										
Calcium Chloride	1	0	0	none	Bulk Plant	Cmt Accelerator	100005053	x	x						
Calseal	0	0	0	none	Bulk Plant	Cmt Additive	100005051	x	x						
Carbon Dioxide Gas					SHOP										
CARBONOX					Warehouse										
Carcoal Lighter Fluid					SHOP										
CAT-3, ACTIVATOR					Drum storage										
CAUSTIC POTASH	3	0	2		Warehouse										
CAUSTIC SODA	3	0	1		Warehouse										
Caustic Soda 50%	3	0	1		Drum Storage		120004070								
CCA-H2S					Warehouse										
CIDER FIBER					Warehouse										
Cement Class C	1	0	0	ALK	Bulk Plant	Cement	100012205	x							
Cement-Standard Fine	1	0	0	ALK	Bulk Plant	Cement	100012229	x			x	x		x	
CFR-3	1	0	0	none	Bulk Plant	Cmt Fric Reducer	100003653	x				x			
[illegible]mpion Spray on				Flammable	SHOP	Paint						x			
[illegible]AMPION SPRAY PAINT					TOOLS										
Chem-Elast 5200 Basecoat					SHOP	Paint									
CHEVRON DEXRON-III/MERCON ATM					Washrack										
Chevron Grease					SHOP	Lubricant									
Chevron Rock Drill Oil 80W-90					WASHRACK							x			
Chevron SAE 15W-40 OIL					WASHRACK							x			
CITRA SOLV -55 GAL					LP-WASHBAY	Asphalt Remover	Non-Halliburton								
CITRIC ACID ANHYDROUS					Drum storage										
CL-22M					Drum storage										

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CL-23					Drum storage										
CL-28M X-Linker	1	0	0	none	Drum Storage	Cross Linker	100003880	x	x						
CL-30	1	0	0		Drum Storage		100003808								
CL-31 X-Linker	3	0	1	corrosive	Drum Storage	Cross Linker	100007866	x	x						
Class H/Premium	1	0	0	none	Bulk Plant	Cement	100003687	x							
CLA-STA XP	1	0	0	none	Drum Storage	Clay Stabilizer	100003733	x	x						
[redacted]ayFix II	3	1	1	none	Acid Plant	Clay Stabilizer	100003729	x	x						
Clear Pvc Solvent Cement					SHOP	Adhesive									
CON DET	1	0	0		Drum storage										
COOL BORE TAPPING COMPOUND-DYNA SYSTEMS					E-TECH										
COTTONSEED HULLS	0	0	0		Warehouse										
Crown Paint Thinner				Flammable	SHOP										
Cylinder, Compressed Gas					SHOP										
DA-30	2	0	0		Drum storage										
DA-320	2	0	0		Drum storage										
DA-330	3	1	0		Drum storage										
DA-370	1	0	0		Drum storage										
DA-40	2	1	1		Drum storage										
D-Air 3000	2	1	0	none	Bulk Plant	Defoamer	101007446	x			x		x	x	
D-Air 3000L	2	1	0	none	Bulk Plant	Defoamer	101007444	x			x	x		x	
DEFOAMER HP					Drum storage										
DEFOAMER W300					Drum storage										
[redacted]e-Icer	3	3	0		TOOLS						x	x		x	
[redacted]SCO CHROME FREE					Drum storage										
DEXTRID LT	0	0	0		Warehouse										
Diacel LWL	1	1	0	none	Warehouse	Fluid Loss									
Diamond Seal	1	1	0		Bulk Plant		101278096				x	x		x	
DIAMOND SEAL	1	1	0		Warehouse										
Diesel	1	2	0	none	Fuel Tanks	Fuel		x							
DIESEL	0	2	0		Drum storage										
DOC-3	3	3	0	Flammable	Warehouse	Surfactant									
BORIC ACID					Warehouse										
DRILL STARCH	0	0	0		Warehouse										
DRILLING PAPER					Warehouse										
DRISPAC REGULAR	0	0	0		Warehouse										
DRY GRAPHITE-KAR					E-TECH							x			

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Dual Spacer	1	0	0	none	Bulk Plant	Spacer	100003654	x	x		x	x		x	
Dual Spacer B	1	0	0	none	Bulk Plant	Spacer	100003665	x	x	x	x	x		x	
Dual Spacer LXP	1	0	0	none	Bulk Plant	Spacer	100003878	x	x						
DURA HOLD ADHESIVE					E-TECH										
[redacted]ATHENE PLUS-CERTIFIED					E-TECH										
DYLEK PS-CERTIFIED					E-TECH										
Econolite-Additive	0	0	0	none	Bulk Plant	Cmt Extender	100001580	x	x						
ELECTA COAT-CERTIFIED					E-TECH										
ELECTRO SOLVE-KAR					E-TECH										
EMERALD FLOOR CLEANER					TOOLS										
EMERALD NEUTRAL CLEANER					E-TECH										
EMULSIFIER-142	1	2	0		Drum Storage										
Engine Paint-Gray					SHOP	Paint									
ENVIRO CHEM C-200					Drum Storage										
ENVIRO-TORQ	1	3	0		Drum Storage										
EPL 50					Drum Storage										
ER-25					Drum Storage										
EXPEDITE 225-Clean Up					Drum Storage										
EXPEDITE 225-Comp A					Drum Storage										
EXPEDITE 225-Comp B					Drum Storage										
[redacted]GLIDE	1	1	0		Drum Storage										
[redacted]MUL	2	1	0		Drum Storage										
EZ-FLO	2	2	1		Bulk Plant		101209283				x				
EZ-MUD	2	1	0		Drum Storage										
EZ-SPOT	2	3	0		Drum Storage										
F-10	1	0	0	none	SHOP	Alkaline Detergent		x			x				
FA200					Drum Storage										
FDP-S769-05					Warehouse										
FDP-S798-05					Warehouse										
FDP-S819-05					Warehouse										
FDP-W658-02	0	0	0	none	Warehouse	Conformance									
FDP-W659-02	1	1	0	none	Warehouse	Conformance									
FE-1A-ACETIC ACID					Acid Plant										
FE-2 CRITIC ACID	1	1	0	none	Acid Plant	Iron Control	100001615	x	x						
FE-5A IRON CONTROL	3	0	0	none	Drum Storage	Reducing Agent	100003811	x	x						

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FE-8	3	1	1	none	Acid Plant	Reducing Agent	101246191	x	x						
FerChek	1	0	0	none	Drum Storage	Iron Control	100012191	x							
FerChek A Red Label	0	0	0	none	Drum Storage	Iron Control	100012226	x	x						
FIBER SEAL					Warehouse										
FILTER-CHEK	0	0	0		Drum Storage										
FLEX MASTER [redacted]HESIVE					E-TECH										
[redacted]C 2000					Drum Storage										
Flocele	1	0	0	none	Bulk Plant	Lost Circulation	100005049	x	x		x	x			
Floor Sweep					TOOLS						x	x			
FLOWZAN					drum storage										
FLUID-SILICONE-DIMETHYL					SHOP						x	x			
Form-A-Gasket Sealant					SHOP	Sealant									
Formlast Spray Adhesive					SHOP	Adhesive									
FR-26LC					Drum Storage										
FR-38	2	0	0	none	SHOP	Cooling Agent		x	x						
FRONT PLUG	0	0	0		Warehouse										
Furniture polish	1	1	1		TOOLS										
Gasket Remover	2	4	0	none	SHOP	remover		x	x						
Gasstop	1	0	0	none	Bulk Plant	Cement Additive									
GASPERM 1000					Warehouse										
GBW-3	1	1	0	Lab	Warehouse	Breaker	100001577	x			x	x		x	
GBW-30	1	1	0	none	Warehouse	Breaker	101237068	x			x	x		x	
Gel-Sta	1	0	0	none	Drum Storage	Stabilizer	100012769	x							
[redacted]ELTONE	1	0	0		Not on Site										
[redacted]sonite	0	1	1	none	Bulk Plant	Circulation	100003700	x			x	x			
Glass cleaner					TOOLS										
GLASS CLEANER					SHOP										
Gloss Hi Solid Paint					SHOP	Paint					x	x		x	
Gloss Oil Base Paint					SHOP	Paint									
Gloss White Areosol Paint	1	4	3		SHOP	Paint									
Gloss Yellow Paint					SHOP	Paint				x	x	x			x
GRAPHITE	1	0	0		SHOP										
GRAY SPRAY PAINT-KAR					E-TECH					x	x				
Gunk Liquid Wrench					TOOLS						x	x		x	x
HAI-404M					Drum Storage										

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HAI-85M					Drum Storage										
HAI-GE	4	3	0	none	Acid Plant	Corrision Inhibitor	101201449	x	x		x	x		x	
HAI-OS	2	3	0	none	Acid Plant	Corrision Inhibitor	100064251	x	x						
Halad-322	0	0	0	none	Bulk Plant	Fluid Loss	100003646	x							
Halad-344	3	1	0	none	Bulk Plant	Fluid Loss	100003670	x							
Halad-413	1	1	0	none	Bulk Plant	Fluid Loss	100003738	x							
Halad-447	1	0	0	none	Bulk Plant	Fluid Loss	100003799	x							
Halad-9	0	0	0	none	Bulk Plant	Fluid Loss	100001617	x			x	x		x	
Halas-23	1	0	0		Bulk Plant		101209204				x				
H-800 H2S SCAVENGER					Drum Storage										
HC-2	2	1	0	none	Acid Plant	Foamer/Surfact	100012218	x	x		x				
Heavy Duty Glass Cleaner	2	4	0	none	SHOP	Glass Cleaner		x	x		x				
HI TECH CONTACT CLEANER-BD					E-TECH										
HII-124B	2	0	1	none	Drum Storage	Intensifier	100012752					x			
HII-124C	1	0	0	none	Drum Storage	Intensifier	100012245	x	x			x			
HII-500M	2	0	0	none	Drum Storage	Intensifier									
HMP Link	1	0	0	none	Drum Storage	Initiator	101279442	x	x						
HPH BREAKER					Warehouse										
HR-12	1	0	0		Bulk Plant		100005057								
HR-25	1	0	0	none	Drum Storage	Additive	100003756	x							
HR-4	1	0	0		Bulk Plant		100005056								
HR-5	1	0	0	none	Bulk Plant	Cmt Retarder	100005050	x							
HR-6	1	0	0	none	Bulk Plant	cement retarder					x				
HR-601	1	1	0		Bulk Plant		101328348								
HR-7	0	1	0	none	Bulk Plant	Cmt Retarder	100005055	x			x	x	x	x	x
Hydrochloric Acid,22	3	0	1	corrosive	Acid Plant	Solvent	100001614	x	x	x	x	x	x	x	x
HYDROGEL					Warehouse										
HYG-3	1	1	0	none	Warehouse	Acid Buffer	100001583	x	x	x	x		x		x
HY-SEAL	0	0	0		Warehouse										
IMPERMEX	0	0	0		Warehouse										
Int. Harvestor Red Areosol Paint	1	4	3		SHOP	Paint						x			
INVERMUL	2	1	0		Warehouse										
ISOPROPANOL					E-TECH							x			
Isopropyl Alcohol					E-TECH							x			
K33	1	0	0	none	Warehouse	Oxy. Scavenger	100012753	x							
K-34	0	0	0	none	Warehouse	Oil Breaker	100001574	x	x		x	x		x	
K-35	2	0	0	none	Warehouse	Buffer	100001575	x			x				
K-38	1	0	0	none	Warehouse	PH Buffer	100003629	x	x						

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K-42					Warehouse		100012197								
KCL					Warehouse										
KCL Potassium Chloride	1	0	0	none	Warehouse	Clay Control	100001585	x							
LAP-1	0	2	0	none	Bulk Plant	Cmt Fluid Loss	100012766	x	x		x	x		x	
Latex 2000 Cement Addt	1	0	0	none	Drum Storage	Cmt Additive	100012261	x	x						
LGC-35 ZD B					Acid Plant										
[redacted]C-35 CBM+					Acid Plant										
[redacted]ght Machinery Gray Areosol Paint	1	4	3		SHOP	Paint						x			
LIME	1	0	0		Warehouse										
Lime-Hydrated	0	0	0	none	Warehouse	Component	100005052	x	x	x	x	x			x
Limoene	2	2	0		SHOP						x	x	x	x	
LIQUID ELECTRICAL TAPE-KAR					E-TECH						x	x		x	
Liquid Nails					SHOP	Adhesive									
LIQUI-VIS	1	0	0		Drum Storage										
LOC TITE THREAD LOCKER					E-TECH										
LOLOSS	1	0	0		Drum Storage										
LoSurf-300	1	4	0	none	Acid Plant	Non-emulsifier	100003655	x	x						
LO-SURF 300 M					Drum Storage										
LUBRA-BEADS	0	0	0		Drum Storage										
MA-100D	0	0	0	none	Warehouse	Gelling Agent					x	x		x	
MA-17	2	0	0	none	Acid Plant	Cross Linker	100009936	x	x						
Macropoxy HS Hardner					SHOP										
MAGMA FIBRE	0	0	0		Warehouse										
[redacted]arine Yellow Coating					SHOP	Paint					x	x			
[redacted]X SEAL	1	0	0		Warehouse										
MDL-4 LUBRICANT-KAR					E-TECH							x			
Medium Acrylic Lacquer Thinner					SHOP							x			
Methanol	1	3	0	none	Acid Plant	Solvent	100001611	x	x			x			
MF-1	0	0	0	none	Warehouse	Thinner	100001622	x							
MF-55					Warehouse										
MICATEX COARSE\FINE	1	0	0		Warehouse										
Micro Fly Ash	1	0	0	none	Bulk Plant	Cement Additive	100003824	x							
Micro Matrix	1	0	0	none	Bulk Plant	Cement	100003770	x							
Microbond Additive	1	0	0	none	Bulk Plant	Expansive Additive	100003669	x	x						
MO-67	1	0	0	none	Drum Storage	My-T-Oil Gel	100003693	x	x						

Halliburton Energy Services Facility Inventory
2311 S. FIRST
ARTESIA, NM

Chemical Name	Health	ammabil	Reactive	Special	Storage Area	PURPOSE	SAP NUMBER	GOGGLES	FACE SHIELD	RUBBER BOOTS	RUBBER GLOVES	AIR PURIFYI NG	AIR SUPPLIED	RUBBER APRON	COVERALLS
Morflo III	2	3	0	none	Acid Plant	Surfactant	100003881	x	x		x	x		x	
MOTOR OIL	0	1	0		SHOP										
MSA-III	3	3	0	none	Acid Plant	Corrosion Inh.	101232906	x	x						
Multi purpose Lithium Grea	0	1	0		TOOLS										
[illegible]iatic Acid	3	0	0		TOOLS						x	x	x		
[illegible]OL-A	2	2	0	Lab	Acid Plant	Mutual Solvent	100001636	x	x		x	x	x		
NAPA Prem Starting Fluid					SHOP	Starting Fluid					x	x	x		
Non-Chlorinated Brake Cleaner	3	1	1	none	SHOP	Solvent		x	x						
N-PLEX	3	0	1		Warehouse										
N-VIS	0	0	0		Warehouse										
NXS LUBE					Drum Storage										
N-ZYME 3					Warehouse										
One Stroke	3	1	0	none	SHOP	Gasket remover		x	x						
OPTIFLO THE					Warehouse										
Optiflo-II	1	1	1	Oxidizer	Warehouse	Delayed Breaker	100003789	x	x						
Optiflo-III	1	0	1	Oxidizer	Warehouse	Delayed Breaker	100003801	x	x						
Optiflo-LT	1	0	0	none	Warehouse	Delayed Breaker	100012269	x	x						
ORBIT CLEANER					E-TECH										
OYSTER SHELL					Warehouse										
OXIDE RED	1	0	0		Bulk Plant										
OXOL II Oxidant	2	0	1	none	Bulk Plant	Pre-flush	100003712	x			x		x		
Oxygen	3	0	0		TOOLS						x	x		x	
PAC L	0	0	0		Warehouse										
[illegible] R	0	0	0		Warehouse										
[illegible]NACHEK 160					Drum Storage										
Parasperse	3	3	0	none	Acid Plant	Paraffin Dispersant	100012782	x	x						
PB penetrating catalyst	2	2	0		TOOLS										
PEN 88M	2	2	0	none	Acid Plant	High Temp Surfact	100003819	x	x						
Penetrating Oil					SHOP	Lubricant				x			x	x	
PHENO SEAL	1	0	0		drum storage										
Pipe Cleaner					SHOP	Cleaner									
PIPE SEALANT-BOWMAN					E-TECH										
PLUG-GIT	0	0	0		Warehouse										
POL-E-FLAKE					Warehouse										
POLYAC	1	0	0		Warehouse										
POLYOL-HM	1	1	0		Warehouse										
POTASSIUM ACETATE					Warehouse										

Halliburton Energy Services **Facility Inventory**
2311 S. FIRST
ARTESIA, NM

Chemical Name	Health	Flammabil	Reactive	Special	Storage Area	PURPOSE	SAP NUMBER	GOGGLES	FACE SHIELD	RUBBER BOOTS	RUBBER GLOVES	AIR PURIFYING	AIR SUPPLIED	RUBBER APRON	COVERALLS
POTASSIUM CHLORIDE	1	0	0		Warehouse										
Pozmix A Flyash	1	0	0	none	Bulk Plant	Cmt Additive	100003690	x			x		x		
PROPYLENE GLYCOL					SHOP										
Protex-All	2	2	0	none	Acid Plant	Scale Inhibitor	100012251	x	x						
RHODAMINE RED LQ DYE					Warehouse										
ick Dry Kilz					SHOP	Paint									
ick Starting Fluid Cylinder					SHOP						x			x	
QUIK-GEL	1	0	0		Warehouse										
Red Iron Oxide Primer	1	4	3		SHOP	Paint					x		x	x	
Regular Unleaded Gasoline					SHOP	Fuel				x	x				

F-24
MATERIAL SAFETY DATA SHEET
Page 1 of 2
Revised: June 2001

American Sales & Service, Inc.
P.O. Box 61610
San Angelo, Texas 76906
Phone: 1-915-658-5824
Chemtrec: 1-800-424-9300
Emergency: 911

Section 1 PRODUCT IDENTIFICATION *

(1) Product Name: F-24 BIODEGRADABLE
(2) Chemical Name: Synonyms: N\A (3) Chemical Family: Alkaline detergent
(4) Chemical Formula: Mixture
(5) NFPA acute hazard rating:- (6) Health 1 (7) Flammability 0
(8) Reactivity 0 (9) pH - 11 range

Section 2 CHEMICAL COMPOSITION *

(1) Ing. (Chemical Name)	(2) CAS #	(3) %Range	(4) PEL	(5) LD mg/kg	(6) other
Sodium Nitrite	7632-00-0	.001	n/a	214	n/a
Sodium Metasilicate	6834-92-0	2.5	n/a	250	n/a
Glycol Ether EB		3.5	n/a	n/a	n/a
Caustic Soda		.5	n/a	n/a	n/a

All other products contained in this formulation are less than 2% by weight and they produce no chronic or acute effects to humans, and no known harmful effects to the environment.

Section 3 EMERGENCY AND FIRST AID PROCEDURES *

(1) Eye Contact: Rinse for 15 minutes with potable water. If irritation persists, seek medical attention. (2) Skin Contact: Rinse with water
(3) Inhalation: Remove victim to source of fresh air. If symptoms persist, seek medical attention.
(4) Ingestion: Seek immediate medical attention. (5) Special instructions or physician: None

Section 4 PHYSIOLOGICAL EFFECTS *

(1) Primary route(s) of entry into body:
(2) _X_ Skin Absorption (3) _X_ Inhalation (4) _X_ Ingestion
(5) Acute Effects:
(6) Eyes: Blurred vision, redness, watering, burning, blistering.
(7) Skin: Redness (8) Inhalation: Irritation, coughing
(9) Ingestion: Burning sensation, nausea
(10) Chronic effects: (including carcinogenic potential): N\A

Section 5 OCCUPATIONAL CONTROL PROCEDURES *

(1) Ventilation: (2) ___ Local exhaust (3) _X_ General Exhaust
(4) ___ None required
(5) Personal protective equipment: (6) Respirator type: None required.
(7) Gloves: (8) ___ Natural Rubber (9) ___ Plastic (10) ___ Nitrile
(11) _X_ Neoprene (12) ___ Butyl (13) ___ Other
(14) Eye Protection: (15) _X_ Glasses w/ side sheilds (16) ___ Full face shield (17) ___ Chemical splash goggles (18) ___ Other: None

Section 6 PHYSICAL DATA *

(1) Appearance/Odor: Clear red liquid/slight butyl alcohol odor.
(2) Physical State: (3) ___ Solid (4) _X_ Liquid (5) ___ Gas
(6) Boiling Point: 212F (7) Freezing Point: 32F
(8) Specific gravity (H20=1): 1.06 (9) ph (full strength): 11
(10) ph (dilution): 11 (11) Solubility in water: Complete
(12) Vapor Pressure: 17.5 mm hg.@20C (13) Vapor Density (air=1): n/a
(14) Evaporation Rate: (water=1): >1 (15) Percent Volatile: n/a

F-24
MATERIAL SAFETY DATA SHEET
Page 1 of 2

Revised: June 2001

American Sales & Service, Inc.
P.O. Box 61610
San Angelo, Texas 76906
Phone: 1-915-658-5824
Chemtrec: 1-800-424-9300
Emergency: 911

Section 7 FIRE AND EXPLOSION HAZARD DATA *

(1) Flash Point: None (2) Method Used: C.O.C. (3) Flammable (explosive) limits in air: N/A (4) Autoignition temperature: N/A (5) Suitable extinguishing media: N/A (6) Hazardous combustion bi-products: N/A (7) Recommended Fire Fighting Procedures: N/A (8) Unusual Fire & Explosion Hazards: N/A

Section 8 REACTIVITY DATA *

(1) Thermal Stability: (2) _X_Stable (3) ___Unstable
(4) Conditions to avoid: extreme heat, strong acids
(5) Hazardous decomposition products: None
(6) Hazardous polymerization: (7) ___May Occur (8) _X_Will not occur
(9) Conditions to avoid: Extreme heat, stron acids
(10) Incompability: (11) Material to avoid: Strong acids
(12) Corrosive action on materials: nil on most materials

Section 9 STORING AND HANDLING PRECAUTIONS *

(1) Storage: Store at temperatures below 120F
(2) Handling: Wear chemical resistant gloves, apron & eye & face protection. (3) Precautionary labeling: None

Section 10 ENVIRONMENTAL INFORMATION *

(1) Spill or leak procedures:
(2) Small spill/leak: Neutralize with acid. Rinse to drain.
(3) Large spill/leak: Mop up or absorb. Neutralize with acid & rinse to drain.
(4) Spill reportable quantitiy: None
(5) Waste disposal method (including clean-up media): Neutralize with acid. Ship to registered waste disposal site.
(6) EPA or appropriate waste classification: (7) ___RCRA or appropriate characteristic waste. If so, EPA Hazardous No.: None
(8) ___RCRA or appropriate listed waste. If so, EPA Hazardous waste No.: None (9) _X_Non-RCRA regulated waste. (10) Procedure for handling empty containers: rinse thoroughly. (11) Environmental toxicity data: biodegradable (12) Other regulatory controls: (13) Is material classified under the CLEAN WATER ACT (USA) or appropriate water regulations as a: (14) Toxic pollutant (section 307) ___Yes _X_No (15) Hazardous substance (section 311) ___Yes _X_No (16) If yes, reportable quantity (R.Q.) ___lbs. (kgs.) (17) Oil (section 311) ___Yes _X_No (18) Is material classified under the CLEAN AIR REGULATIONS as a: (19) Hazardous air pollutant? ___Yes _X_No (20) Comments: None

Section 11 TRANSPORTATION AND SHIPPING REQUIREMENTS *

(1) Indicate country/regulatory agency which specifies requirements: ___USA-DOT ___Europe-ADR/RID ___UN-IMO ___UN-ICAO ___IATA ___Canada-CTC ___Other: None (2) Proper Shipping Name: Cleaning Compound, liquid, NOIBN (3) Hazard class: None (4) ID#: None (5) Labels required: No Flammable liquid ___Corrosive Material ___Other: None (6) Other requirements: None

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/28/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM/BC

LAB NO. SAMPLE ID	REACTIVITY Sulfide (ppm)	Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:	02/23/07	02/23/07	02/27/07	02/28/07
H12230-2 LIFT STATION	Not reactive	Not reactive	6.59	>140
Quality Control	NR	NR	6.91	NR
True Value QC	NR	NR	7.00	NR
% Recovery	NR	NR	98.7	NR
Relative Percent Difference	NR	NR	0.0	NR

METHOD: EPA SW-846 7.3, 7.2, 1010, 1311, *40 CFR 261*

Chemist

2/28/07
Date

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ATTN: STEVE BAILEY
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HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM/BC

LAB NO.	SAMPLE ID	REACTIVITY Sulfide (ppm)	Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:		02/23/07	02/23/07	02/27/07	02/22/07
H12230-3	GRIT TRAP	Not reactive	Not reactive	10.95	Nonflammable
Quality Control		NR	NR	6.91	NR
True Value QC		NR	NR	7.00	NR
% Recovery		NR	NR	98.7	NR
Relative Percent Difference		NR	NR	0.0	NR

METHOD: EPA SW-846 7.3, 7.2, 1030 (proposed), 1311, *40 CFR 261*

Chemist

2/27/07
Date

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ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-2
Sample ID: LIFT STATION

Analysis Date: 02/26/07
Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H12230-2	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.050	<0.005	0.011	22	0.050
1,4-Dichlorobenzene	7.50	<0.050	<0.005	0.045	90	0.050
o-Cresol	200	<0.050	<0.005	0.042	84	0.050
m, p-Cresol	200	<0.050	<0.005	0.038	76	0.050
Hexachloroethane	3.00	<0.050	<0.005	0.039	78	0.050
Nitrobenzene	2.00	<0.050	<0.005	0.046	92	0.050
Hexachloro-1,3-butadiene	0.500	<0.050	<0.005	0.044	88	0.050
2,4,6-Trichlorophenol	2.00	<0.050	<0.005	0.048	96	0.050
2,4,5-Trichlorophenol	400	<0.050	<0.005	0.050	100	0.050
2,4-Dinitrotoluene	0.130	<0.050	<0.005	0.042	84	0.050
Hexachlorobenzene	0.130	<0.050	<0.005	0.051	102	0.050
Pentachlorophenol	100	<0.050	<0.005	0.048	96	0.050

	% RECOVERY
Fluorophenol	29
Phenol-d5	22
Nitrobenzene-d5	64
2-Fluorobiphenyl	60
2,4,6-Tribromophenol	104
Terphenyl-d14	102

METHODS: EPA SW-846 1311, 8270, 3510

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

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Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-2
Sample ID: LIFT STATION

Analysis Date: 02/23/07
Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H12230-2	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.020	<0.020	0.109	109	0.100
1,1-Dichloroethylene	0.7	<0.020	<0.020	0.105	105	0.100
Methyl Ethyl Ketone	200	<0.200	0.644	0.108	108	0.100
Chloroform	6.0	<0.020	<0.020	0.109	109	0.100
1,2-Dichloroethane	0.5	<0.020	<0.020	0.100	100	0.100
Benzene	0.5	<0.020	<0.020	0.100	100	0.100
Carbon Tetrachloride	0.5	<0.020	<0.020	0.101	101	0.100
Trichloroethylene	0.5	<0.020	<0.020	0.104	104	0.100
Tetrachloroethylene	0.7	<0.020	<0.020	0.097	97	0.100
Chlorobenzene	100	<0.020	<0.020	0.094	94	0.100
1,4-Dichlorobenzene*	7.5	0.035	0.055	0.105	105	0.100

*Analyte detected at comparable levels in the sample & method blank.

% RECOVERY	
Dibromofluoromethane	82
Toluene-d8	98
Bromofluorobenzene	89

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-3
Sample ID: GRIT TRAP

Analysis Date: 02/26/07
Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H12230-3	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.020	<0.005	0.011	22	0.050
1,4-Dichlorobenzene	7.50	0.021	<0.005	0.045	90	0.050
o-Cresol	200	<0.020	<0.005	0.042	84	0.050
m, p-Cresol	200	<0.020	<0.005	0.038	76	0.050
Hexachloroethane	3.00	<0.020	<0.005	0.039	78	0.050
Nitrobenzene	2.00	<0.020	<0.005	0.046	92	0.050
Hexachloro-1,3-butadiene	0.500	<0.020	<0.005	0.044	88	0.050
2,4,6-Trichlorophenol	2.00	<0.020	<0.005	0.048	96	0.050
2,4,5-Trichlorophenol	400	<0.020	<0.005	0.050	100	0.050
2,4-Dinitrotoluene	0.130	<0.020	<0.005	0.042	84	0.050
Hexachlorobenzene	0.130	<0.020	<0.005	0.051	102	0.050
Pentachlorophenol	100	<0.020	<0.005	0.048	96	0.050

	% RECOVERY
Fluorophenol	41
Phenol-d5	31
Nitrobenzene-d5	74
2-Fluorobiphenyl	81
2,4,6-Tribromophenol	106
Terphenyl-d14	113

METHODS: EPA SW-846 1311, 8270, 3510

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
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HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-3
Sample ID: GRIT TRAP

Analysis Date: 02/23/07
Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H12230-3	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.005	<0.005	0.109	109	0.100
1,1-Dichloroethylene	0.7	<0.005	<0.005	0.105	105	0.100
Methyl Ethyl Ketone	200	<0.050	0.129	0.108	108	0.100
Chloroform	6.0	<0.005	<0.005	0.109	109	0.100
1,2-Dichloroethane	0.5	<0.005	<0.005	0.100	100	0.100
Benzene	0.5	<0.005	<0.005	0.100	100	0.100
Carbon Tetrachloride	0.5	<0.005	<0.005	0.101	101	0.100
Trichloroethylene	0.5	<0.005	<0.005	0.104	104	0.100
Tetrachloroethylene	0.7	<0.005	<0.005	0.097	97	0.100
Chlorobenzene	100	<0.005	<0.005	0.094	94	0.100
1,4-Dichlorobenzene*	7.5	0.009	0.011	0.105	105	0.100

*Analyte detected at comparable levels in the sample & method blank.

	% RECOVERY
Dibromofluoromethane	78
Toluene-d8	89
Bromofluorobenzene	83

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

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ANALYTICAL RESULTS FOR
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ATTN: STEVE BAILEY
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FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/28/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER & SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

TCLP METALS

LAB NO.	SAMPLE ID	As ppm	Ag ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm
ANALYSIS DATE:		02/27/07	02/26/07	02/26/07	02/26/07	02/26/07	02/26/07	02/26/07	02/27/07
EPA LIMITS:		5	5	100	1	5	5	0.2	1
H12230-2	LIFT STATION	< 1	< 1	< 5	< 0.1	< 1	< 1	< 0.02	< 0.1
H12230-3	GRIT TRAP	< 1	< 1	< 5	< 0.1	< 1	< 1	< 0.02	< 0.1
Quality Control		0.152	1.99	23.9	2.05	1.91	1.95	0.0062	0.157
True Value QC		0.150	2.00	25.0	2.00	2.00	2.00	0.0060	0.150
% Recovery		101	99.5	95.6	103	95.5	97.5	103	105
Relative Standard Deviation		5.0	0.6	3.4	0.3	0.9	4.0	3.2	0.5
METHODS: EPA 1311, 600/4-91/010		206.2	272.1	208.1	213.1	218.1	239.1	245.1	270.2

Chemist

02-28-07
Date

H12230M

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Halliburton	**BILL TO**
Project Manager: Steve Bailey	P.O. #:
Address: 5001 Lexington HWY	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: Lift Station & Grit Trap	State: Zip:
Project Location: Artesia, NM	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV		SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TCLP (no pesticides)	RCI	BTEX	8015M						
H12230-1	Manhole	G	4	X							X		2-22-07	9:40	✱	✱								
-2	Lift Station	G	4	X							X		2-22-07	9:45	X	X	X	X						
-3	Grit Trap	G	1						X		X		2-22-07	9:58	X	X	X	X						

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 2-22-07	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 9:58AM		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: ✱ No Analysis need on H12230-1 (manhole) Please email results to Steve Bailey ASAP Stephen.bailey@halliburton.com
	Time:		
Delivered By: (Circle One)	Sample Condition: Cool ☒ Yes ☐ No Intact ☐ Yes ☐ No	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other:		MT	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

QR-30 MATERIAL SAFETY DATA SHEET

REVISED 2/2002

AMERICAN SALES & SERVICE
PO BOX 61610
SAN ANGELO, TX 76906
PHONE: 915-658-5824
PREPARED BY RCC, INC 915-697-7000
EMERGENCY:915-520-5810

SECTION 1, *GENERAL INFORMATION*

PRODUCT NAME: QR-30 BIODEGRADABLE SOAP GENERIC NAME: CAR AND TRUCK WASH
FIRE 0 HEALTH 1 REACTIVE 0 SPECIAL 0

SECTION 2, *HAZARDOUS INGREDIENTS/IDENTITY INFORMATION*

HAZARDOUS COMPONENTS	(CAS NUMBER)	OSHA PEL	ACGIHTLV
NONE KNOWN			

SECTION 3, *PHYSICAL/CHEMICAL CHARACTERISTICS*

PH, 10.5 BOILING POINT 212 F SPECIFIC GRAVITY (H20=1), 1.014
VAPOR PRESSURE, ND VAPOR DENSITY, ND EVAPORATION RATE(BuAc=1)ND
SOLUBILITY IN WATER, SOLUBLE/DISPERSIBLE POUR POINT, +28F
APPEARANCE AND ODOR, DARK AMBER LIQUID, SWEET ODOR

SECTION 4, *FIRE AND EXPLOSION HAZARD DATA*

FLASH POINT: (TCC)255 F FLAMMABLE LIMITS: LEL; NA UEL; NA
EXTINGUISHING MEDIA: CARBON DIOXIDE, FOAM, DRY/CHEMICAL, WATER SPRAY
FLAMMABLE LIMITS BASED ON MOST VOLATILE LIMITS
SPECIAL FIRE FIGHTING PROCEDURES: WATER SPRAY MAY BE USED TO COOL FIRE EXPOSED METAL CONTAINERS TO PREVENT REIGNITION FROM HOT SURFACES. DO NOT BREATHE SMOKE OF HOT VAPORS.
UNUSUAL FIRE AND EXPLOSION HAZARDS: VAPOR MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. DO NOT EXPOSE TO OPEN FLAME OF SPARK. INTENSE HEAT MAY CAUSE PRESSURE BUILD UP AND RUPTURE OF PRODUCT CONTAINERS. MATERIAL WILL BECOME LIQUID ABOVE POUR POINT. TOXIC FUMES MAY BE RELEASED.

SECTION 5, *REACTIVITY INFORMATION*

STABILITY: PRODUCT IS: STABLE
INCOMPATIBILITY
MATERIALS TO AVOID, OXIDIZERS OR OXIDIZING MATERIALS
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS, CARBON DIOXIDE, CARBON MONOXIDE,
HAZARDOUS POLYMERIZATION; WILL NOT OCCUR

SECTION 6, *HEALTH HAZARD DATA*

ROUTES OF ENTRY

INHALATION? IRRITANT SKIN/EYES? IRRITANT INGESTION? IRRITANT, CAN CAUSE CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION. IN EXTREME CASES MAY BE FATAL.

HEALTH HAZARDS

ACUTE, NONE KNOWN. INGESTION OF LIQUID CAN CAUSE GASTROINTESTINAL DISTRESS. LIQUID CAN CAUSE IRRITATION TO THE EYES.
CHRONIC: NONE KNOWN

CARCINOGENICITY

LISTED IN NPT? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO
SIGNS OF SYMPTOMS OF EXPOSURE, IRRITATION OF EYES AND SKIN DEVELOPS UPON CONTACT.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE, NONE KNOWN

EMERGENCY AND FIRST-AID PROCEDURES:

EYE CONTACT: FLUSH EYES WITH WATER FOR 15 MINUTES, GET MEDICAL ADVICE

SKIN CONTACT: WASH WITH SOAP AND WATER. REMOVE ANY CONTAMINATED CLOTHING. GET MEDICAL ATTENTION IF SYMPTOMS DEVELOP AND PERSIST.

INGESTION: 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. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL **RESPIRATION.** GIVE OXYGEN IF BREATHING IS LABORED. GET EMERGENCY MEDICAL HELP. CONTACT PHYSICIAN IMMEDIATELY.

SECTION 7, *PRECAUTIONS FOR SAFE HANDLING*

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED, ***SMALL SPILLS***, CAN BE WASHED DOWN SEWER OR DRAIN. WILL CAUSE FLOOR TO BECOME SLICK. NON-SLIP FOOTWEAR SHOULD BE WORN BY CLEAN UP PERSONNEL. ***LARGE SPILLS:*** CONTAIN WITH DIKES, PICK UP WITH VACUUM TRUCK. CAN BE DISPOSED OF BY DILUTING WITH WATER AND FLUSHED DOWN DRAIN. SHOULD BE DILUTED WITH WATER AT LEAST 1:50 TO AVOID FOAMING. WILL CAUSE FLOOR TO BECOME SLICK. NON-SLIP FOOTWEAR SHOULD BE WORN BY CLEAN UP PERSONNEL. ***FOR VAPOR RELEASE:*** GET PEOPLE OUT OF THE AREA. SHUT OFF IGNITION SOURCES, VENTILATE THE AREA. NOTIFY PROPER AUTHORITIES IF REQUIRED BY SARA TITLE III. ***WASTE DISPOSAL METHOD***: CAN BE FLUSHED WITH WATER DOWN THE DRAIN. SHOULD BE DILUTED AT LEAST 1:50 TO AVOID FOAMING. ***PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:***STORE IN COOL DRY AREA AS WITH ANY CHEMICAL PRODUCT. ***OTHER PRECAUTIONS***: CLEAN UP LEAKS IMMEDIATELY TO PREVENT INJURY TO PERSONNEL FROM SLIPS.

SECTION 8, *CONTROL MEASURES*

RESPIRATORY PROTECTION, (IF CONCENTRATION REACHES OF EXCEEDS TLV), NIOSH APPROVED ORGANIC VAPOR MASK REQUIRED.

VENTILATION:LOCAL EXHAUST:RECOMMENDED SPECIAL, ND

MECHANICAL: RECOMMENDED OTHER ND

PROTECTIVE GLOVES: CHEMICAL RESISTANT GAUNTLET TYPE

EYE PROTECTION: CHEMICAL GOGGLES OF FULL FACE SHIELD *OTHER PROTECTIVE EQUIPMENT*: BOOTS, APRONS, DRENCH SHOWERS, EYE WASH AS NEEDED FOR PROTECTION AGAINST SPILLS AND/OR SPLASHES. WORK HYGIENIC PRACTICES: AVOID CONTACT WITH SKIN, EYES AND CLOTHING. AFTER HANDLING THIS PRODUCT, WASH HANDS BEFORE EATING, DRINKING OF SMOKING. IF CONTACT OCCURS, REMOVE CONTAMINATED CLOTHING. IF NEEDED, TAKE FIRST AID ACTION SHOWN IN SECTION 6. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 9, *TRANSPORTATION INFORMATION*

NOT REGULATED REPORTABLE QUANTITY: NONE KNOWN

SECTION 10, *OTHER DATA*

EPA HAZARDS, ACUTE-YES CHRONIC-NO FLAMMABILITY-NO REACTIVE-NO

SUDDEN RELEASE FOR PRESSURE- NO

SARA TITLE III: THRESHOLD PLANNING QUANTITY-NONE REPORTABILITY QUANTITY-NONE

SECTION 313, TOXIC MATERIALS: CHEMICAL NAME-NONE

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 710

SOURCES OF THE RAW MATERIALS USED IN THIS MIXTURE ASSURE THAT ALL CHEMICAL INGREDIENTS PRESENT ARE IN COMPLIANCE WITH SECT. 8(b) CHEMICAL SUBSTANCE INVENTORY, OR ARE OTHERWISE IN COMPLIANCE WITH TSCA

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

LAB NO. SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:	02/22/07	02/22/07	02/22/07	02/22/07	02/22/07	02/22/07
H12230-3 GRIT TRAP	60.1	2110	0.015	0.548	0.450	1.99
Quality Control	798	794	0.103	0.099	0.098	0.288
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	99.8	99.2	103	99.3	98.1	96.1
Relative Percent Difference	0.1	3.1	2.5	2.9	1.0	2.2

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

H12230A2

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

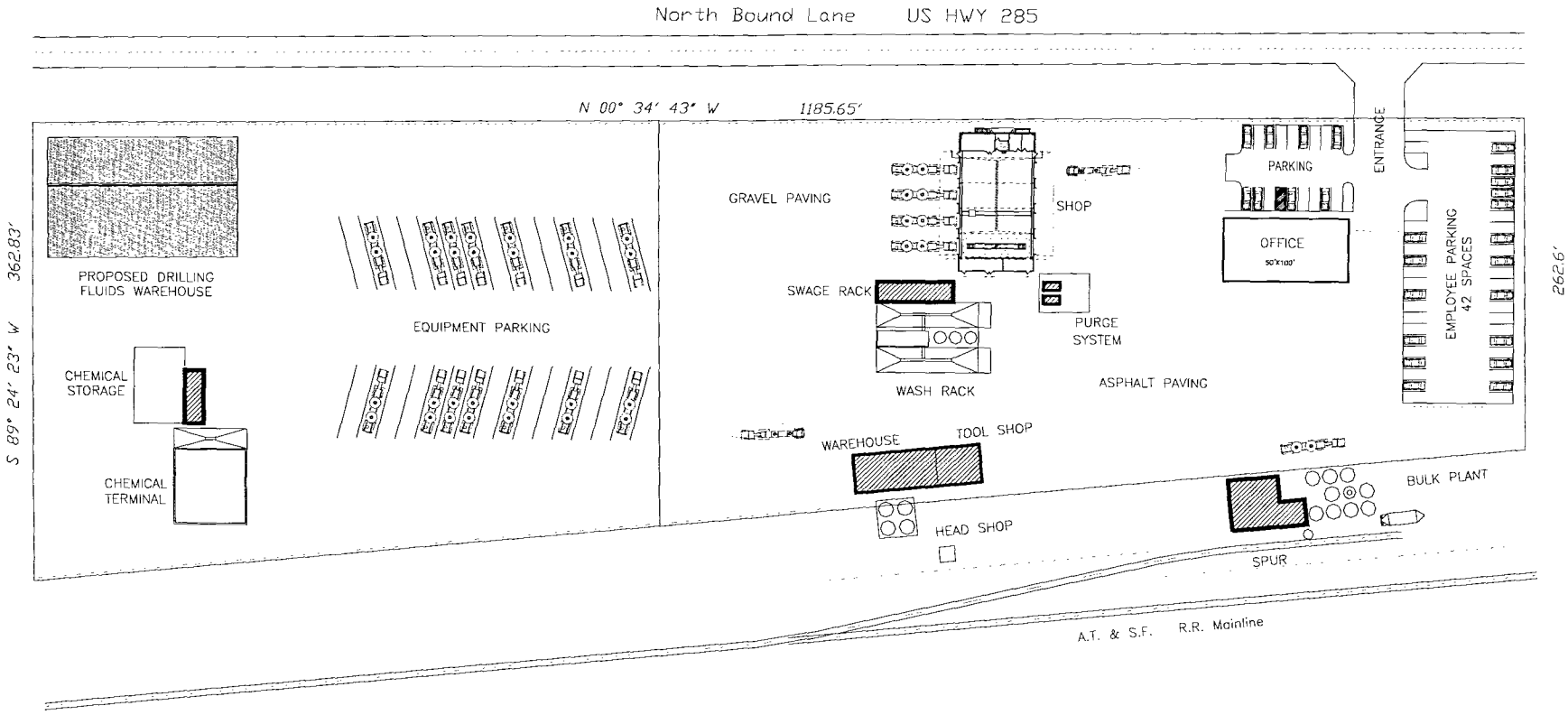
LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/L)	DRO (>C_{10}-C_{28}) (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE:		02/22/07	02/22/07	02/23/07	02/23/07	02/23/07	02/23/07
H12230-2	LIFT STATION	<5.0	14.5	<0.005	0.021	0.014	0.043
Quality Control		27.9	29.1	0.105	0.095	0.099	0.289
True Value QC		30.0	30.0	0.100	0.100	0.100	0.300
% Recovery		93.1	96.9	105	95.0	99.0	96.5
Relative Percent Difference		0.5	3.6	1.3	4.6	0.9	0.4

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

Date 2/27/07

H12230A1



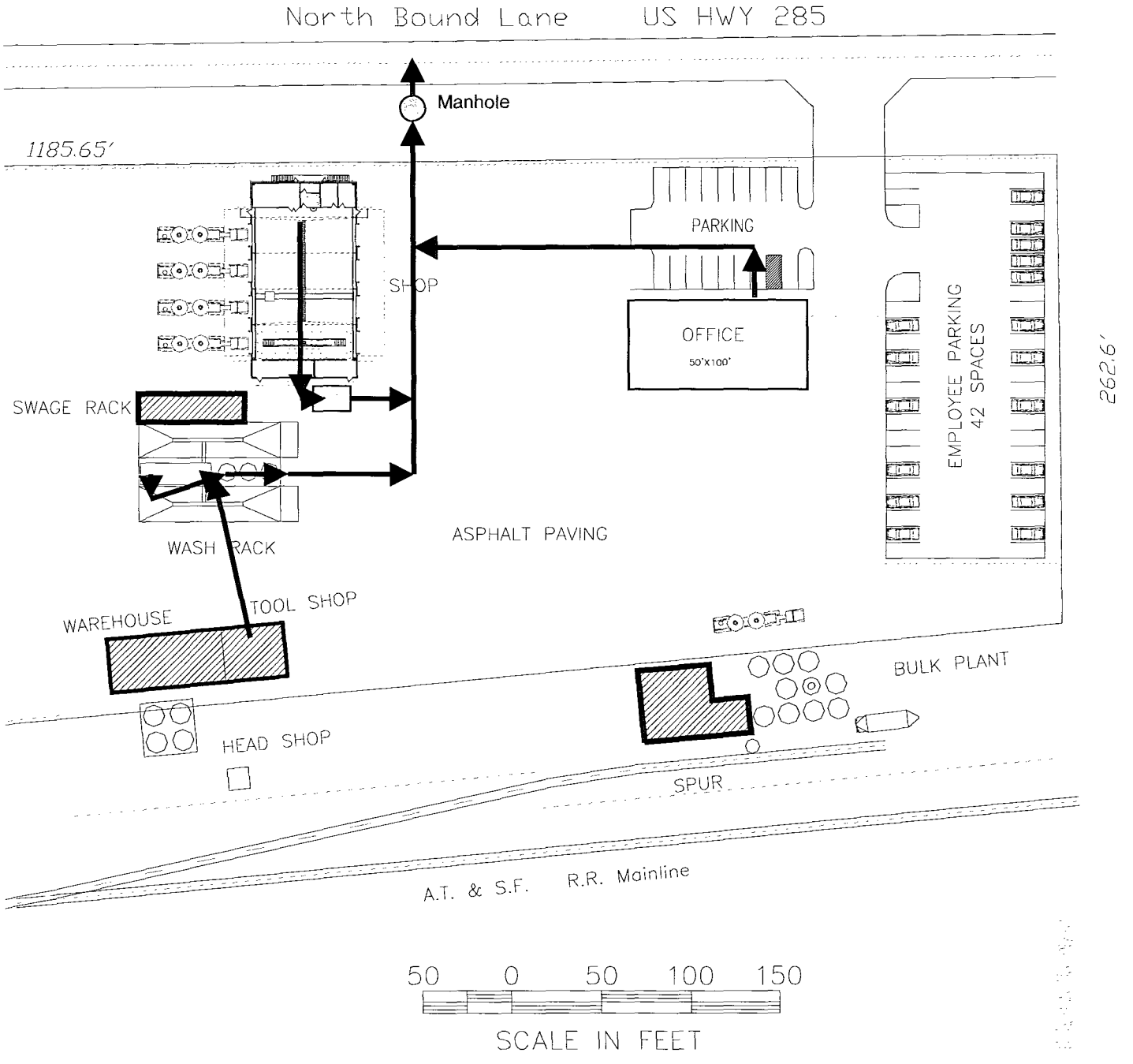
HALLIBURTON ENERGY SERVICES

P.O. DRAWER O
2311 SOUTH FIRST
ARTESIA, NEW MEXICO
88210

50 0 50 100 150
SCALE IN FEET

N 00° 34' 43" W

Red lines indicate
Waste Water Flow
To City Sewer.



City of Artesia

Waste Water Treatment Plant,
P.O. DRAWER 1310
Artesia,N.M. 88211-1310

Telephone 505-746-9651
FAX # 505-746-0068

SEND TO Robert George ~~Tim Goon~~ Brad Jones Stephen Bailey (1) ATTENTION _____

LOCATION _____ FAX NUMBER _____

URGENT ___ REPLY ASAP ___ FOR YOUR INFORMATION ___

FROM Neil Knott LOCATION Artesia, NM

DATE 2/26/07

COMMENTS

(1) On Copy to Halliburton, Navajo results blanked out.

Notes

- Representative Bill Grey contacted by City of Artesia to request our involvement
- Robert George + Chris Vick of SWQB/NMED contacted by City of Artesia for recommendations

ASSAIGAI ANALYTICAL LABORATORIES, INC.
4301 Masthead NE • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, Ste. N • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820
127 Eastgate Drive, 212-C • Los Alamos, New Mexico 87544 • (505) 662-2558

Explanation of codes	
B	Analyte Detected in Method Blank
E	Result is Estimated
H	Analyzed Out of Hold Time
N	Tentatively Identified Compound
S	Subcontracted
1-9	See Footnote

CITY OF ARTESIA
attn: MICHAEL STROUD
P.O. DRAWER 1310
ARTESIA NM 88210

STANDARD

Assaigai Analytical Laboratories, Inc.

Certificate of Analysis

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: CITY OF ARTESIA
Project:
Order: 0702567 ARTC1 Receipt: 02-21-07

William P. Blaver: President of Assaigai Analytical Laboratories, Inc.

Sample: ***EFFLUENT*** Collected: *02-20-07 10:30:00* By: *ST*
Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0001A		**SW846 5030A/8015B GRO by GC/FID**						By: RDW		
V07108	XG.2007.253.16		Gasoline Range Organics	ND	mg/L	1	0.05	1,2	02-22-07	02-23-07
0702567-0001A		**EPA 300.0 Anions by IC**						By: JJK		
W07139	WC.2007.439.30	16887-00-6	Chloride	220	mg/L	100	0.05		02-21-07	02-23-07
0702567-0001A		**SW846 8015B Diesel Range Organics by GC/FID**						By: SDW		
S07098	XG.2007.250.8		Diesel Range Organics	ND	mg/L	1	25		02-22-07	02-22-07

Sample: ***HALIBURTON*** Collected: *02-20-07 14:22:00* By: *ST*
Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0002A		**SW846 5030A/8015B GRO by GC/FID**						By: RDW		
V07105	XG.2007.253.9		Gasoline Range Organics	0.75	mg/L	1	0.05	1	02-22-07	02-22-07
0702567-0002A		**EPA 300.0 Anions by IC**						By: JJK		
W07139	WC.2007.439.24	16887-00-6	Chloride	1060	mg/L	100	0.05		02-21-07	02-22-07
0702567-0002A		**SW846 8015B Diesel Range Organics by GC/FID**						By: SDW		
S07098	XG.2007.250.9		Diesel Range Organics	29	mg/L	1	25		02-22-07	02-22-07
0702567-0002B		**SW846 5030B/8260B Purgeable VOCs by GC/MS**						By: EJB		
V07107	XG.2007.246.8	67-64-1	Acetone	2900	ug/L	50	10		02-22-07	02-22-07
V07107	XG.2007.245.10	71-43-2	Benzene	ND	ug/L	5	1		02-22-07	02-22-07
V07107	XG.2007.245.10	100-41-4	Ethylbenzene	18	ug/L	5	1		02-22-07	02-22-07
V07107	XG.2007.245.10	95-47-6	o-Xylene	20	ug/L	5	1		02-22-07	02-22-07

Report Date: 2/26/2007 2:21:36 PM

STANDARD

Assaigai Analytical Laboratories, Inc.

Certificate of Analysis

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **CITY OF ARTESIA**

Project:

Order: **0702567** **ARTC1** Receipt: **02-21-07**

Sample: ***HALIBURTON*** Collected: *02-20-07 14:22:00* By: *ST*

Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0002B		SW846 5030B/8260B Purgeable VOCs by GC/MS						By: EJB		
V07107	XG.2007.245.10	108-38-3/106-42	p/m-Xylenes	33	ug/L	5	2		02-22-07	02-22-07
V07107	XG.2007.245.10	108-88-3	Toluene	25	ug/L	5	1		02-22-07	02-22-07

Sample: ***NAVAJO METER*** Collected: *02-20-07 14:57:00* By: *ST*

Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0003A		SW846 5030A/8015B GRO by GC/FID						By: RDW		
V07108	XG.2007.253.11		Gasoline Range Organics	0.85	mg/L	5	0.05	1	02-22-07	02-22-07
0702567-0003A		EPA 300.0 Anions by IC						By: JJK		
W07139	WC.2007.439.25	16887-00-6	Chloride	1240	mg/L	100	0.05		02-21-07	02-22-07
0702567-0003A		SW846 8015B Diesel Range Organics by GC/FID						By: SDW		
S07098	XG.2007.250.10		Diesel Range Organics	200	mg/L	1	25		02-22-07	02-22-07

Sample: ***NAVAJO METER*** Collected: *02-21-07 15:29:00* By: *ST*

Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0004A		SW846 5030B/8260B Purgeable VOCs by GC/MS						By: EJB		
V07107	XG.2007.246.22	67-64-1	Acetone	180	ug/L	1	10		02-22-07	02-22-07
V07107	XG.2007.245.11	71-43-2	Benzene	ND	ug/L	1	1		02-22-07	02-22-07
V07107	XG.2007.245.11	100-41-4	Ethylbenzene	ND	ug/L	1	1		02-22-07	02-22-07
V07107	XG.2007.245.11	95-47-6	o-Xylene	ND	ug/L	1	1		02-22-07	02-22-07
V07107	XG.2007.245.11	108-38-3/106-42	p/m-Xylenes	ND	ug/L	1	2		02-22-07	02-22-07
V07107	XG.2007.245.11	108-88-3	Toluene	ND	ug/L	1	1		02-22-07	02-22-07

Sample: ***AREATION BASIN*** Treatment Basin WWTF Collected: *02-21-07 7:15:00* By: *ST*

Matrix: ***G***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0702567-0005A		SW846 5030A/8015B GRO by GC/FID						By: RDW		
V07108	XG.2007.253.8		Gasoline Range Organics	ND	mg/L	1	0.05	1	02-22-07	02-22-07
0702567-0005A		SW846 8015B Diesel Range Organics by GC/FID						By: SDW		
S07098	XG.2007.250.11		Diesel Range Organics	ND	mg/L	1	25		02-22-07	02-22-07

Report Date: *2/26/2007 2:21:36 PM*

Navajo Agreement to Discharge Feb 7 2006

STANDARD

Assaigai Analytical Laboratories, Inc.

Certificate of Analysis

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **CITY OF ARTESIA**

Project:

Order: **0702567** **ARTC1** Receipt: **02-21-07**

Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or footnotes will appear below.

Analytical results are not corrected for method blank or field blank contamination.

1 This sample was received with a pH >2 and headspace.

2 The recoveries of the matrix spike and the matrix spike duplicate, performed on this sample, are outside of QC criteria. This is attributed to matrix interference.

Report Date: 2/26/2007 2:21:36 PM

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

MEMORANDUM

TO: Mark Fesmire, Director
THRU: Wayne Price, Environmental Bureau Chief
FROM: Brad A. Jones
SUBJECT: Investigation of Halliburton Geophysical Service Yard Potential Release - Permit Number GW-115
DATE: February 22, 2007
PHYSICAL LOCATION: 5801 South 1st Street, Artesia, New Mexico 88210

10:39 am - Wednesday, February 21, 2007

Mr. Neil Knott, the City of Artesia's Utilities Director, contacted Glen Von Gonten to issue a complaint of a possible release from the Halliburton facility into the City of Artesia wastewater treatment facility.

1:00 pm – Wednesday, February 21, 2007

Brad Jones and Carl Chavez from the OCD Santa Fe office received voice mail message from Wayne Price of a reported potential release to the City of Artesia wastewater treatment facility (WWTF). OCD staff were asked to investigate since they were traveling from Carlsbad to Artesia for a meeting. Artesia had determined that the potential release came from the Halliburton Service Yard. Upon arrival OCD staff contacted the City of Artesia's Utilities Director (Mr. Neil Knott) to inquire about the potential release. Mr. Knott arrived at the pump/lift station across the street from the Halliburton facility. OCD representatives questioned Mr. Knott about the release. Mr. Knott indicated that operator of the WWTF had been observing an increase in a blackish colored water entering the WWTF for approximately the past 10 days. The increase of black influent has created complications with the operations of the WWTF (poor flocculation/foaming, increase in total suspended solids, discoloration of effluent, and a visible sheen on the treated effluent water). Mr. Knott had investigated all potential sources (Halliburton, Navajo Refinery, and an Industrial Park) and had discovered that the Halliburton pump/lift station to be the only source with black water present. OCD staff retrieved a sample with a dedicated bailer from the Halliburton pump/lift station and confirmed the presence of the black water. Artesia public works personnel and a representative from Assaigi Laboratory arrived and pulled a sample from the Halliburton pump/lift station for analyses (BTEX and Chlorides). An earlier sample had been sent to Assaigi Laboratory for TPH analyses.

While awaiting the arrival of Stephen Bailey (Location ESG Manager) of Halliburton's Hobbs, New Mexico office, OCD staff and Mr. Knott met with an on-site Halliburton representative

(Kevin O'Brien) and inspected the Halliburton Service Yard for potential sources. Mr. O'Brien explained the collection and treatment process involved with the wash bay and maintenance shop wastewater. Wash bay and maintenance shop wastewater is diverted to a central collection sump where solids are allowed to settle out and oils to float to the top, then enters into a three-phase oil-water separator system. All oil is skimmed off the top of the water before entering into the drain line to the pump/lift station. The water in the three oil-water separators is regularly tested for pH. Mr. O'Brien pulled samples for each of the oil-water separator tanks; all three water samples were clear. Brad. Jones inspected the oil-water separator tanks to confirm the water quality. The only other line that currently provides wastewater into the drain line is from the existing administrative office/shop building to the north. Only septic wastewater from the restrooms of the existing administrative office/shop building enters into the drain line. There are no floor drains in this shop area. Two new buildings are under construction (new administrative building and shop), but have not been occupied or used. Mr. Bailey (Location ESG Manager) of Halliburton arrived to explain the wastewater system and drain line locations and feed sources. Mr. Bailey stated that approximately two to three days ago it was reported that wastewater was backing up into the maintenance shop from the central collection sump. Halliburton contacted CRI to pump the central collection sump to remove the solids from the bottom of the sump.

Brad Jones inspected the manhole to drain line, which runs from the Halliburton facility beneath State Hwy 285 to the pump/lift station. The pump/lift station is the last pump/lift station on this line. The City of Artesia pulled a sample from the manhole and confirmed the presence of the black water. Artesia public works personnel measured the sample for pH (7.09). The wastewater sample was black in color, high concentration of suspended solids, with an oil residue or sheen. Mr. Bailey of Halliburton stated that it looked like stale water, but agreed that stale water should not present due to the volume water that passes through the oil-water separator system. Mr. Knott, Mr. Bailey and Brad Jones agreed that Halliburton should take immediate action to pump/vacuum the blackish wastewater from the manhole sump and the pump/lift station to remove the source material. The water is a non-exempt wastewater and must be tested to demonstrate that it not hazardous. If determined to be non-hazardous, it will be transported and disposed at an OCD approved disposal facility. Halliburton will investigate their oil-water separator system for any accumulation of blackish water at the bottom of each of the three oil-water separator tanks. If discovered, Halliburton will pump/vacuum the blackish water from the bottom of the tanks. Both Halliburton and the City of Artesia agree to provide a copy of their laboratory analytical results to the OCD for review.

Upon the departure (3:30 pm) of the release investigation, Brad Jones observed the arrival of a CRI pump/vacuum truck.

285
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Jones, Brad A., EMNRD

From: Neil Knott [nknott@artesianm.com]
Sent: Friday, February 23, 2007 5:00 PM
To: Stephen Bailey; Stacey Davis; Gum, Tim, EMNRD; Jones, Brad A., EMNRD
Cc: Manuel Madrid
Subject: UPDATE: BTEX results for Halliburton PS

Gentlemen:

The following results came in after I sent the previous e-mail. They are still marked "preliminary" and I don't have a schedule for when the remainder will come in. All of these are for the Halliburton pump station sample:

Gasoline Range Organics - 0.75 milligrams/liter Diesel Range Organics - 29 milligrams/liter

Please note that these results are in milligrams/liter, whereas the previous results were in micrograms/liter. This is not a typographical error.

--- Neil Knott

-----Original Message-----
From: Neil Knott [mailto:nknott@artesianm.com]
Sent: Friday, February 23, 2007 2:26 PM
To: Stephen Bailey; Stacey Davis; Tim W. Gum; Brad A. Jones
Cc: Manuel Madrid
Subject: BTEX results for Halliburton PS

Gentlemen,

We just got the first preliminary written test results from Assaigai Lab for the BTEX sample from the Halliburton Pump Station. They are:

Benzene - Not detected
Ethylbenzene - 18 micrograms/liter
o-Xylene - 20 micrograms/liter
p/m Xylenes - 33 micrograms/liter
Toulene - 25 micrograms/liter

--- Neil Knott

Jones, Brad A., EMNRD

From: Neil Knott [nknott@artesianm.com]
Sent: Friday, February 23, 2007 5:09 PM
To: Gum, Tim, EMNRD; Jones, Brad A., EMNRD
Cc: Manuel Madrid
Subject: BTEX results for Navajo Refinery

Gentlemen:

The following results have come in for the BTEX sample taken from the Navajo Refinery discharge. I did not include them in the previous e-mails because those went to Halliburton staff. All results are marked "preliminary."

Gasoline Range Organics - 0.85 milligrams per liter Diesel Range Organics - 200 milligrams per liter

Benzene, Ethylbenzene, o-Xylene, p/m-Xylene, and Toluene - all non detectable

We also had some testing done on our plant effluent and on the mixed liquor in the aeration basins. They came back as non-detectable for Gasoline Range Organics and Diesel Range Organics.

--- Neil Knott

City of Artesia

Waste Water Treatment Plant,
P.O. DRAWER 1310
Artesia,N.M. 88211-1310

Telephone 505-746-9651
FAX # 505-746-0068

SEND TO _____ ATTENTION Brad Jones

LOCATION _____ FAX NUMBER 505-476-3462

URGENT ___ REPLY ASAP ___ FOR YOUR INFORMATION ___

FROM Artesia Wastewater LOCATION _____

DATE Feb 27 07

COMMENTS

You may have trouble reading
Copy

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES, INC.

4301 Masthead N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

127 EASTGATE DRIVE, 212-C
LOS ALAMOS, NEW MEXICO 87544
(505) 662-2556

Lab Job No.: _____ Date _____

Page 1 of 1

Client: City of Artesia

Address: PO Box 1310

City / State / Zip: Artesia NM 88210

Project Name / Number: _____

Contract / Purchase Order / Quote: _____

Project Manager / Contact: Michael Stewart

Telephone No.: 505 746 9651

Fax No.: 505 746 8088

Samplers : (signature): [signature]

AAL Position Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation: Temp.	Preservation: Chemical	No. of Containers	Analysis Required	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]	Liter glass		None	1	X	
2	[illegible]	[illegible]	[illegible]	[illegible]	" "		1	1	X	
3	[illegible]	[illegible]	[illegible]	[illegible]	" "		1	1	X	
4	[illegible]	[illegible]	[illegible]	[illegible]	1L Amb		4°C	2	X	
5										
6										
7										
8										
9										
10										
11										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [signature]	2/21/07	Signature: [signature]	Signature:		Signature:
Printed:	Time	Printed: S. Tebo	Printed:	Time	Printed:
Company: City of Artesia	0730	Company: AAL	Company:		Company:
Reason:		Reason:	Reason:		Reason:

Method of Shipment: hand

Shipment No.: _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

FIELD FILE

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-2
Sample ID: LIFT STATION

Analysis Date: 02/26/07
Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H12230-2	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.050	<0.005	0.011	22	0.050
1,4-Dichlorobenzene	7.50	<0.050	<0.005	0.045	90	0.050
o-Cresol	200	<0.050	<0.005	0.042	84	0.050
m, p-Cresol	200	<0.050	<0.005	0.038	76	0.050
Hexachloroethane	3.00	<0.050	<0.005	0.039	78	0.050
Nitrobenzene	2.00	<0.050	<0.005	0.046	92	0.050
Hexachloro-1,3-butadiene	0.500	<0.050	<0.005	0.044	88	0.050
2,4,6-Trichlorophenol	2.00	<0.050	<0.005	0.048	96	0.050
2,4,5-Trichlorophenol	400	<0.050	<0.005	0.050	100	0.050
2,4-Dinitrotoluene	0.130	<0.050	<0.005	0.042	84	0.050
Hexachlorobenzene	0.130	<0.050	<0.005	0.051	102	0.050
Pentachlorophenol	100	<0.050	<0.005	0.048	96	0.050

	% RECOVERY
Fluorophenol	29
Phenol-d5	22
Nitrobenzene-d5	64
2-Fluorobiphenyl	60
2,4,6-Tribromophenol	104
Terphenyl-d14	102

METHODS: EPA SW-846 1311, 8270, 3510

Burgess J.A. Cooke, Ph. D.

Date 2/27/07

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-2
Sample ID: LIFT STATION

Analysis Date: 02/23/07
Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H12230-2	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.020	<0.020	0.109	109	0.100
1,1-Dichloroethylene	0.7	<0.020	<0.020	0.105	105	0.100
Methyl Ethyl Ketone	200	<0.200	0.644	0.108	108	0.100
Chloroform	6.0	<0.020	<0.020	0.109	109	0.100
1,2-Dichloroethane	0.5	<0.020	<0.020	0.100	100	0.100
Benzene	0.5	<0.020	<0.020	0.100	100	0.100
Carbon Tetrachloride	0.5	<0.020	<0.020	0.101	101	0.100
Trichloroethylene	0.5	<0.020	<0.020	0.104	104	0.100
Tetrachloroethylene	0.7	<0.020	<0.020	0.097	97	0.100
Chlorobenzene	100	<0.020	<0.020	0.094	94	0.100
1,4-Dichlorobenzene*	7.5	0.035	0.055	0.105	105	0.100

*Analyte detected at comparable levels in the sample & method blank.

	% RECOVERY
Dibromofluoromethane	82
Toluene-d8	98
Bromofluorobenzene	89

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-3
Sample ID: GRIT TRAP

Analysis Date: 02/26/07
Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H12230-3	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.020	<0.005	0.011	22	0.050
1,4-Dichlorobenzene	7.50	0.021	<0.005	0.045	90	0.050
o-Cresol	200	<0.020	<0.005	0.042	84	0.050
m, p-Cresol	200	<0.020	<0.005	0.038	76	0.050
Hexachloroethane	3.00	<0.020	<0.005	0.039	78	0.050
Nitrobenzene	2.00	<0.020	<0.005	0.046	92	0.050
Hexachloro-1,3-butadiene	0.500	<0.020	<0.005	0.044	88	0.050
2,4,6-Trichlorophenol	2.00	<0.020	<0.005	0.048	96	0.050
2,4,5-Trichlorophenol	400	<0.020	<0.005	0.050	100	0.050
2,4-Dinitrotoluene	0.130	<0.020	<0.005	0.042	84	0.050
Hexachlorobenzene	0.130	<0.020	<0.005	0.051	102	0.050
Pentachlorophenol	100	<0.020	<0.005	0.048	96	0.050

	% RECOVERY
Fluorophenol	41
Phenol-d5	31
Nitrobenzene-d5	74
2-Fluorobiphenyl	81
2,4,6-Tribromophenol	106
Terphenyl-d14	113

METHODS: EPA SW-846 1311, 8270, 3510

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM
Lab Number: H12230-3
Sample ID: GRIT TRAP

Analysis Date: 02/23/07
Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H12230-3	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.005	<0.005	0.109	109	0.100
1,1-Dichloroethylene	0.7	<0.005	<0.005	0.105	105	0.100
Methyl Ethyl Ketone	200	<0.050	0.129	0.108	108	0.100
Chloroform	6.0	<0.005	<0.005	0.109	109	0.100
1,2-Dichloroethane	0.5	<0.005	<0.005	0.100	100	0.100
Benzene	0.5	<0.005	<0.005	0.100	100	0.100
Carbon Tetrachloride	0.5	<0.005	<0.005	0.101	101	0.100
Trichloroethylene	0.5	<0.005	<0.005	0.104	104	0.100
Tetrachloroethylene	0.7	<0.005	<0.005	0.097	97	0.100
Chlorobenzene	100	<0.005	<0.005	0.094	94	0.100
1,4-Dichlorobenzene*	7.5	0.009	0.011	0.105	105	0.100

*Analyte detected at comparable levels in the sample & method blank.

	% RECOVERY
Dibromofluoromethane	78
Toluene-d8	89
Bromofluorobenzene	83

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/28/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER & SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

TCLP METALS

LAB NO. SAMPLE ID	As ppm	Ag ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm
ANALYSIS DATE:	02/27/07	02/26/07	02/26/07	02/26/07	02/26/07	02/26/07	02/26/07	02/27/07
EPA LIMITS:	5	5	100	1	5	5	0.2	1
H12230-2 LIFT STATION	< 1	< 1	< 5	< 0.1	< 1	< 1	< 0.02	< 0.1
H12230-3 GRIT TRAP	< 1	< 1	< 5	< 0.1	< 1	< 1	< 0.02	< 0.1
Quality Control	0.152	1.99	23.9	2.05	1.91	1.95	0.0062	0.157
True Value QC	0.150	2.00	25.0	2.00	2.00	2.00	0.0060	0.150
% Recovery	101	99.5	95.6	103	95.5	97.5	103	105
Relative Standard Deviation	5.0	0.6	3.4	0.3	0.9	4.0	3.2	0.5
METHODS: EPA 1311, 600/4-91/010	206.2	272.1	208.1	213.1	218.1	239.1	245.1	270.2

Chemist

02-28-07
Date

H12230M

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: Halliburton	**BILL TO**
Project Manager: Steve Bailey	P.O. #:
Address: 5501 Lexington HWY	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: Lift Station & Grit Trap	State: Zip:
Project Location: Artesia, NM	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV		SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TCLP (no pesticides)	RCT	BTEX	8015M						
H12230-1	Manhole	G	1		X						X		2-22-07	9:40	X	X								
-2	Lift Station	G	4		X						X		2-22-07	9:45	X	X	X	X						
-3	Grit Trap	G	1					X			X		2-22-07	9:58	X	X	X	X						

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 2-22-07	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:58 AM		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: * No Analysis need on H12230-1 (manhole) Please email results to Steve Bailey ASAP Stephen.bailey@halliburton.com
	Time:		
Delivered By: (Circle One)		Sample Condition: Cool ☒ Yes ☐ No Intact ☐ Yes ☐ No	CHECKED BY: (Initials) MA
Sampler - UPS - Bus - Other:			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

LAB NO. SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:	02/22/07	02/22/07	02/22/07	02/22/07	02/22/07	02/22/07
H12230-3 GRIT TRAP	60.1	2110	0.015	0.548	0.450	1.99
Quality Control	798	794	0.103	0.099	0.098	0.288
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	99.8	99.2	103	99.3	98.1	96.1
Relative Percent Difference	0.1	3.1	2.5	2.9	1.0	2.2

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

2/27/07
Date

H12230A2

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

LAB NO. SAMPLE ID	GRO (C_6-C_{10}) (mg/L)	DRO (>C_{10}-C_{28}) (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE:	02/22/07	02/22/07	02/23/07	02/23/07	02/23/07	02/23/07
H12230-2 LIFT STATION	<5.0	14.5	<0.005	0.021	0.014	0.043
Quality Control	27.9	29.1	0.105	0.095	0.099	0.289
True Value QC	30.0	30.0	0.100	0.100	0.100	0.300
% Recovery	93.1	96.9	105	95.0	99.0	96.5
Relative Percent Difference	0.5	3.6	1.3	4.6	0.9	0.4

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

Date

H12230A1

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/28/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM/BC

LAB NO. SAMPLE ID	REACTIVITY Sulfide (ppm)	Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:	02/23/07	02/23/07	02/27/07	02/28/07
H12230-2 LIFT STATION	Not reactive	Not reactive	6.59	>140
Quality Control	NR	NR	6.91	NR
True Value QC	NR	NR	7.00	NR
% Recovery	NR	NR	98.7	NR
Relative Percent Difference	NR	NR	0.0	NR

METHOD: EPA SW-846 7.3, 7.2, 1010, 1311, *40 CFR 261*

Chemist

2/28/07
Date

H12230R

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HALLIBURTON
ATTN: STEVE BAILEY
5801 LOVINGTON HWY.
HOBBS, NM 88240
FAX TO:

Receiving Date: 02/22/07
Reporting Date: 02/27/07
Project Number: NOT GIVEN
Project Name: LIFT STATION & GRIT TRAP
Project Location: ARTESIA, NM

Sampling Date: 02/22/07
Sample Type: SLUDGE
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM/BC

LAB NO. SAMPLE ID	REACTIVITY Sulfide (ppm)	REACTIVITY Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:	02/23/07	02/23/07	02/27/07	02/22/07
H12230-3 GRIT TRAP	Not reactive	Not reactive	10.95	Nonflammable
Quality Control	NR	NR	6.91	NR
True Value QC	NR	NR	7.00	NR
% Recovery	NR	NR	98.7	NR
Relative Percent Difference	NR	NR	0.0	NR

METHOD: EPA SW-846 7.3, 7.2, 1030 (proposed), 1311, *40 CFR 261*

Chemist

2/27/07
Date

City of Artesia

Waste Water Treatment Plant,
P.O. DRAWER 1310
Artesia,N.M. 88211-1310

Telephone 505-746-9651
FAX # 505-746-0068

SEND TO Brad Jones ATTENTION _____

LOCATION _____ FAX NUMBER _____

URGENT ___ REPLY ASAP ___ FOR YOUR INFORMATION ___

FROM Neil Knott LOCATION _____

DATE _____

COMMENTS _____

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES, INC.

4301 Masthead N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

8332 WEBB/ENDDO
EL PASO, TEXAS 79925
(915) 593-6000

127 EASTGATE DRIVE, 212-C
LOS ALAMOS, NEW MEXICO 87544
(505) 662-8558

Lab Job No.: 0702567 Date ______

Page 1 of 1

Client: City of Artesia
Address: PO Box 1310
City/State/Zip: Artesia, NM 88210
Project Name / Number: ______
Contract / Purchase Order (Quote) ______

Project Manager / Contact: Michael Stroud
Telephone No. 505-746-9651
Fax No. 505-746-0068
Samplers: (signature) [signature]

0201A	effluent	2-20-07	1030	G	Liter glass		none	1	X		X	
[illegible]2A	Haliburton	2-20-07	1422	G	" "		|	2	X	X	X	
[illegible]3A	Navajo Meter	2-20-07	1457	G	" "		|	1	X		X	
[illegible]4A	Aeration Basin	2-21-07	0715	G	1 L Amber		HCL	2	X			
[illegible]5A	Navajo Meter	2/21/07	1529	W	40 ml VOA		HCL	1	[illegible]	X		
[illegible]	Aeration Basin	2/21/07	0715	W	" "		"	1	X			

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [signature]	2/21/07	Signature [signature]	Signature ______	2/22/07	Signature [signature]
Printed ______	Time	Printed S. Taber	Printed ______	Time	Printed ______
Company City of Artesia	0730	Company AAL	Company ______	735	Company [illegible]
Reason ______		Reason ______	Reason ______		Reason ______

Method of Shipment: bus
Shipment No. ______
Special Instructions: ______

Comments: (must) have Results by 2/22/07
[illegible] 2.1 / 3.9

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI PROJECT FILE

HALLIBURTON

HALLIBURTON ENERGY SERVICES

5801 Lovington Highway / Hobbs, New Mexico 88240 / Tel: 505-392-6531 / Fax: 505-392-7062

0746

17 March 1998

To: Jack Ford

Re: Washrack pit closure

Jack,

We have an out of service washrack pit located in Artesia, N.M. This washrack pit has been out of service since 1988. This pit is located at the northeast side of facility and is designated as #6 on our current Discharge plan. Pit is constructed of 4 concrete walls, with an open bottom. Dimensions of pit are 11' X 14'X 12'. There is a metal overhead cover and screen on all four sides.

We are proposing to fill pit with fresh caliche or fill dirt. We feel that this would be sufficient. Environmental testing on this pit consisted of a TCLP, conducted in May 1994 and a soil boring test, conducted by Delta Environmental in August 1995. Please see attached pages for all test results. If you have any questions please call me at 505-392-0746.

Thank You,

Scott Nelson

Scott Nelson
Hobbs, New Mexico

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2611 S. 1st Street
City, State: Artesia, NM 88210

Date: 5/17/94
Lab # H1645-1

Project Name: Halliburton Sludge Pit
Project Location: Artesia, NM
Sampled by: JC
Type of Sample: Sludge

Date: not supplied
Sample Condition: GIST

Sample ID: Sludge Pit Sludge

TCLP ORGANICS

PARAMETER	RESULT	UNITS
Pyridine	<0.002	mg/L
o-Cresol	<0.002	mg/L
m,p-Cresol	<0.002	mg/L
Hexachloroethane	<0.002	mg/L
Nitrobenzene	<0.002	mg/L
Hexachloro-1,3-butadiene	<0.002	mg/L
2,4,6-Trichlorophenol	<0.002	mg/L
2,4,5-Trichlorophenol	<0.002	mg/L
2,4-Dinitrotoluene	<0.002	mg/L
Hexachlorobenzene	<0.002	mg/L
Pentachlorophenol	<0.002	mg/L
Vinyl Chloride	<0.001	mg/L
1,1-Dichloroethylene	<0.001	mg/L
Methyl ethyl ketone	<0.001	mg/L
Chloroform	<0.001	mg/L
1,2-Dichloroethane	<0.001	mg/L
Benzene	<0.001	mg/L
Carbon tetrachloride	<0.001	mg/L
Trichloroethylene	<0.001	mg/L
Tetrachloroethylene	<0.001	mg/L
Chlorobenzene	<0.001	mg/L
1,4-Dichlorobenzene	<0.001	mg/L

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Silver	0.101	mg/L
Arsenic	0.034	mg/L
Barium	1.61	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.05	mg/L
Mercury	<0.0005	mg/L
Lead	0.27	mg/L
Selenium	0.009	mg/L

TCLP ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2611 S. 1st St.
City, State: Artesia, NM 88210

Date: 5/13/94
Lab#: H1645-1

Project Name: Halliburton Sludge Pit
Project Location: Artesia, NM
Sampled by: JC
Type of Sample: Sludge

Date: not supplied
Sample Condition: GIST

Sample ID: Sludge Pit Sludge

HAZARDOUS WASTE CHARACTERIZATION

PARAMETER	RESULT	UNITS
Ignitability (Pensky-Martens Closed Cup)	>140 Degrees	F
Corrosivity, (pH)	7.90	
Reactivity	Positive (Reactive)	

METHODS: TCLP ORGANICS - EPA 8260/8270
METHODS: TCLP INORGANICS (Leachate) - EPA 1311/3005/7000
METHODS: HWC - EPA SW 846

Michael R. Fowler

5-17-94

Michael R. Fowler

Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2611 S. 1st Street
City, State: Artesia, NM 88210

Date: 5/17/94
Lab # H1645-2

Project Name: Halliburton Sludge Pit
Project Location: Artesia, NM
Sampled by: JC
Type of Sample: Water

Date: not supplied
Sample Condition: GIST

Sample ID: Sludge Pit Water

TCLP ORGANICS

PARAMETER	RESULT	UNITS
Vinyl Chloride	<0.001	mg/L
1,1-Dichloroethylene	<0.001	mg/L
Methyl ethyl ketone	<0.001	mg/L
Chloroform	<0.001	mg/L
1,2-Dichloroethane	<0.001	mg/L
Benzene	<0.001	mg/L
Carbon tetrachloride	<0.001	mg/L
Trichloroethylene	<0.001	mg/L
Tetrachloroethylene	<0.001	mg/L
Chlorobenzene	<0.001	mg/L
1,4-Dichlorobenzene	<0.001	mg/L

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Silver	0.026	mg/L
Arsenic	0.006	mg/L
Barium	0.34	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.05	mg/L
Mercury	0.0007	mg/L
Lead	<0.10	mg/L
Selenium	0.008	mg/L

METHODS: TCLP ORGANICS - EPA 8260
METHODS: TCLP INORGANICS (Leachate) - EPA 1311/3005/7000

Michael R. Fowler

Michael R. Fowler

5-17-94

Date

Delta
Environmental
Consultants, Inc.

2340 Trinity Mills Road
Suite 230
Carrollton, TX 75006-1939
214/418-6202
FAX: 214/418-5243

August 25, 1995

Mr. Matt Ratliff
Halliburton Energy Services
1015 Bois D'Arc
P.O. Drawer 1431
Duncan, OK 73536-0108

Subject: Open Pit Soil Sampling
Halliburton Energy Services
Artesia, New Mexico
Delta Project No. F095-169-1.0001

Dear Matt:

Delta Environmental Consultants, Inc (Delta) was on site at the Artesia, New Mexico location on August 7, 1995 to perform an investigation of the area surrounding an open pit near the northeast corner of the site.

One soil boring was drilled to 18 feet below grade to investigate the possible presence of petroleum hydrocarbons in the subsurface near the pit. More borings were not possible due to nearby buildings and overhead utilities.

The geology of the site consists of 16 feet of tan to brown, silty clay grading to hard, dry, chalky silt at 16 feet below grade. Split spoon samples from 10-18 feet below grade were screened for volatile hydrocarbons with a photo-ionization detector (PID). Soil screening did not indicate petroleum hydrocarbons in the soils. No ground water was encountered while drilling. A log of the boring is included as Attachment 2.

One sample from the bottom of the boring was submitted for analysis of Total Petroleum Hydrocarbons (TPH) by EPA Method 418.1. Laboratory analysis indicated that petroleum hydrocarbons were present in the soil sample at a concentration of 15 ppm. Copies of the laboratory report and chain-of-custody are included as Attachment 3.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Mark T. Smith
Project Geologist

MTS/srw

Attachments

Delta
Environmental
Consultants, Inc.

2340 Trinity Mills Road, Suite 230
Carrollton, TX 75006
214/418-6202

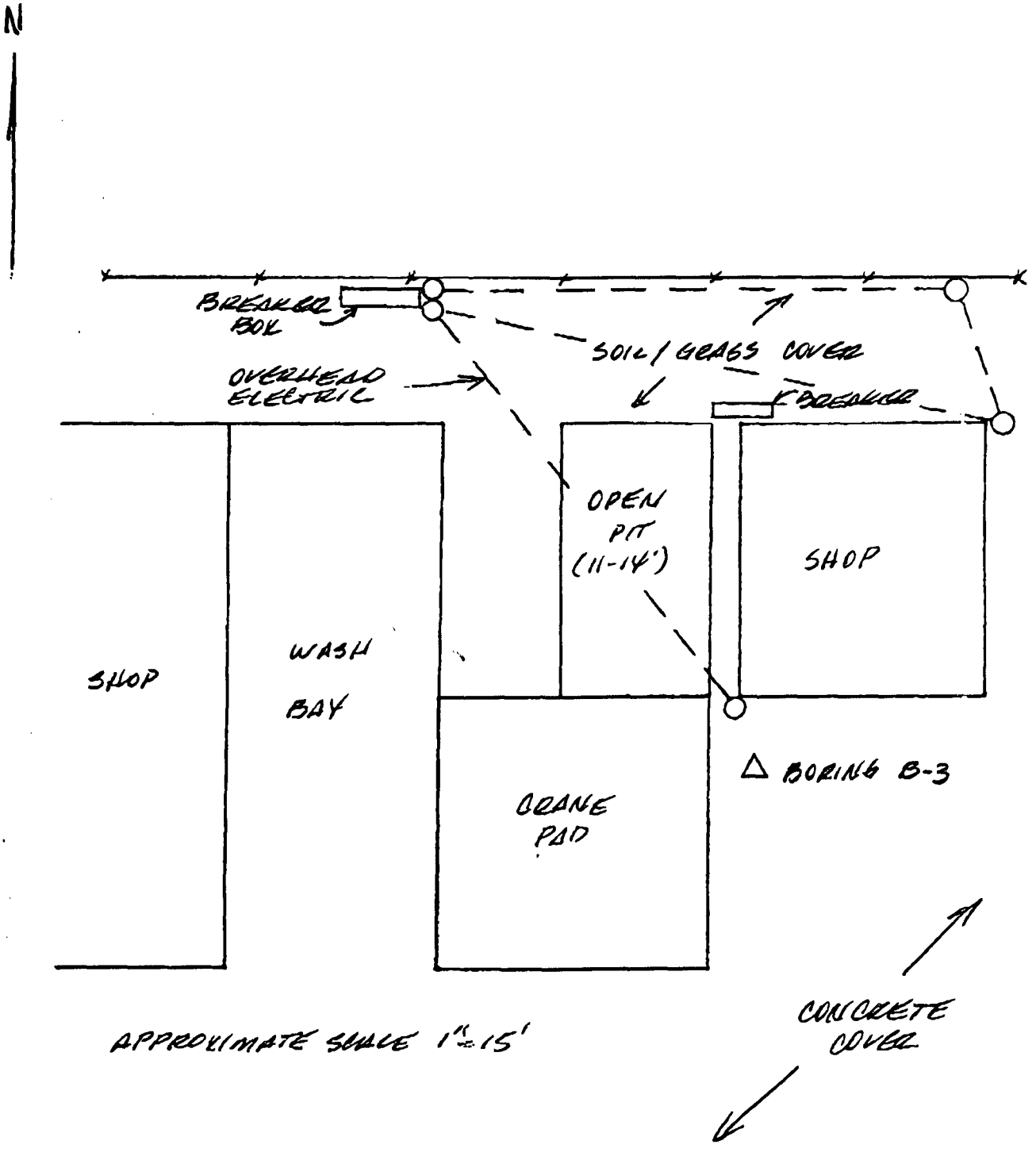
PROJECT NO. F095[redacted]69 SHEET 1 OF 1

PROJECT NAME H.E.S. ARTESIA

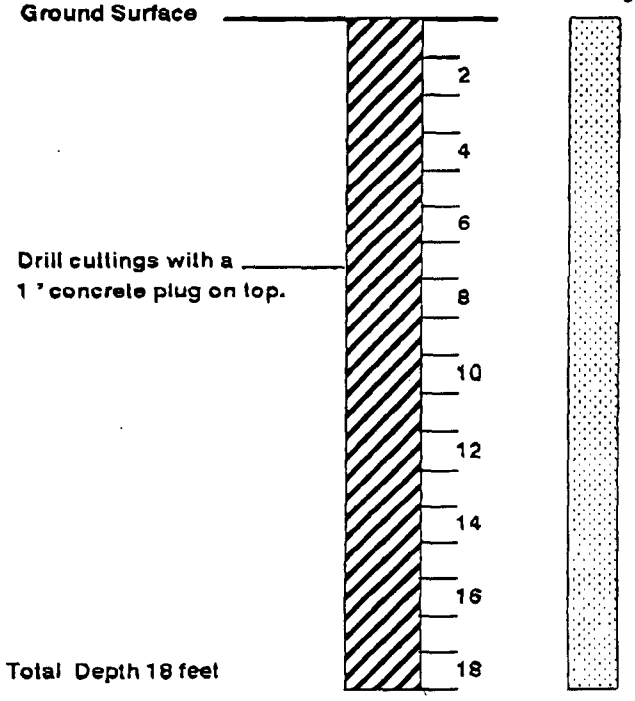
BY MTB DATE 8-24-95

SUBJECT SITE SKETCH / BORING LOCATION

CHECKED BY ..... DATE



Project Name:	Halliburton Energy Services	Boring/Well No.:	B-1
Location:	Artesia, New Mexico		
Project No.:	F095-169-1.0001		



Lithology

	PID (ppm)
0-10 feet, tan to brown silt and silty clay with gypsum crystals.	0
	0
10-16 feet, tan to brown silt and silty clay with gypsum crystals.	0
	0
	0
16-18 feet, hard, dry, chalky silt, tan to brown.	0

Contractor:	Harrison Environmental Drilling	Geologist:	Mark Smith
Driller:	Donny Reza	Date Started:	08/07/95
Drilling Method:	Hollow Stem Auger	Date Completed:	08/07/95
Sampling Method:	Split Spoon	TOC Elevation:	N/A

Delta Environmental Consultants, Inc.

STAR ANALYTICAL

14500 Trinity Boulevard, Suite 106 • Fort Worth, Texas 76155
(817) 571-6800 • Metro (817) 540-6982 • FAX (817) 267-5431

ACCREDITED

Delta Environmental	Client Project ID:	H.E.S. Artesia	Sampled:	Aug 8, 1995
2340 Trinity Mills, #230	Matrix Descript:	Soil	Received:	Aug 11, 1995
Carrollton, TX 75006	Analysis Method:	EPA 418.1 (I.R. with clean-up)	Extracted:	Aug 16, 1995
Attention: Mark T. Smith	First Sample #:	508-0361	Analyzed:	Aug 16, 1995
			Reported:	Aug 16, 1995

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample Number	Sample Description	Petroleum Oil mg/kg (ppm)
508-0361	B-3	15
MB081695	Method Blank	N.D.

Detection Limits:	**5.0**

Analytes reported as N.D. were not present above the stated limit of detection.

STAR ANALYTICAL

Lari Hall
Project Manager

STAR ANALYTICAL

14500 Trinity Boulevard, Suite 106 • Fort Worth, Texas 76155
(817) 571-6800 • Metro (817) 540-6982 • FAX (817) 267-5431

ACCREDITED

Delta Environmental
2340 Trinity Mills, #230
Carrollton, TX 75006
Attention: Mark T. Smith

Client Project ID: H.E.S. Artesia
Matrix: Soil
QC Sample Group: 508-0361

Reported: Aug 16, 1995

QUALITY CONTROL DATA REPORT

ANALYTE
TRPH

Method:	EPA 418.1
Analyst:	CM
Reporting Units:	mg/Kg
Date Prepared:	Aug 16, 1995
Date Analyzed:	Aug 16, 1995
LCS ID #:	LCS081695
Spike Conc. Added:	40
LCS Spike % Recovery:	97
Control Limits:	80-120
MS/MSD SAMPLE #:	5080348MS
Matrix Spike % Recovery:	99
Matrix Spike Duplicate % Recovery:	97
Relative % Difference:	1.0

Please Note: The LCS is a Laboratory control sample of interferent free matrix that is analyzed using the same reagents, preparation and methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, MS/MSD's QC limits are advisory only and are not used to accept or reject batch results. The % Rec. and RPD are calculated as follows:

$$\%\ \text{Recovery:} \quad \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{(\text{Conc. of M.S. + Conc. of M.S.D.}) / 2} \times 100$$

5080361.DEE <2>

STAR ANALYTICAL

Lari Hall
Project Manager

STAR ANALYTICAL
CHAIN-OF-CUSTODY FORM

14500 Trinity Boulevard, Suite 106
Fort Worth, Texas 76155
(817) 571-6800 • Metro (817) 540-6982 • FAX (817) 267-5431

Company Name: DELTA ENVIRONMENTAL	Project Name: H.E.S. ARTESIA
Address: 2340 TRINITY MILLS #230	Billing Address (if different):
City: CARROLLTON State: TX Zip Code: 75025	
Telephone: 214-416-6202 FAX #: 214-416-5243	P.O. #: F095-169
Report To: MARK SMITH Sampler: MARK SMITH	

Turnaround Time: ☐ 10 Working Days ☑ 4 Working Days ☐ 24 Hours ☐ 7 Working Days ☐ 3 Working Days ☐ 2 - 8 Hours ☐ 5 Working Days ☐ 2 Working Days

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Star's Sample #	Analyses Requested: TPH (418.1)	Comments
1. ~~B-4 20-22'~~	8-8-95 9:35	SOIL	1	4OZ GLASS			
2. B-3	8-8-95 13:10	SOIL	1	4OZ GLASS	5080361	✓	
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

Relinquished By:	Date: 8-11-95	Time: 16:50	Received By:	Date: 8/11/95	Time: 16:38
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Samples Received in Good Condition? ☑ Yes ☐ No Samples Cold? ☑ Yes ☐ No Method of Shipment COURIER

Samples Pre-Preserved? ☒ Yes ☐ No ☒ N/A Custody Seal Intact? ☐ Yes ☐ No ☒ N/A

Page ___ of ___

White - Star Yellow - Star Pink - Client

SEP 01 '95 08:35AM HALLIBURTON ENERGY SERVICES

Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

COVER PAGE
FORM 1216
QUARTERLY MONITORING REPORT

Please include the following information:

1. **Site name:** Halliburton Services, Artesia
2. **Responsible party:** Halliburton Services
3. **Responsible party mailing address** (list contact person if different):

   P.O. Box 1431

   Duncan, OK 73536-0100

4. **Facility number:** 2089002
5. **Address/legal description:** 2311 South First Street, Artesia, NM
6. **Author/consulting company:** Souder, Miller & Associates
7. **Date of report:** October 23, 1997
8. **Date of confirmation of release or date USTB was notified of the release:**

   10 / 18 / 90

STATEMENT OF FAMILIARITY

I, the undersigned, am personally familiar with the information submitted in this report and the attached documents and attest that it is true and complete.

Signature: _____

Name: Karl E. Tonander

Affiliation: Souder, Miller and Associates (Consultant)

Title: Project Engineer

Certified Scientist #: 008

Date: 11 / 5 / 97

The following sections are to be addressed in narrative format. Please be as complete and concise as possible! If more space is needed, please insert additional pages as needed.

I. INTRODUCTION:

A. Scope of work: make reference to workplan.

On behalf of Halliburton Services, Souder, Miller & Associates (SMA) has prepared this report summarizing the results of quarterly monitoring for the seventh quarter ending in October 1997 at the Halliburton Services site located in Artesia, New Mexico. Quarterly monitoring was performed pursuant to the workplan dated January 21, 1997 and approved February 24, 1997. Monitoring activities, conducted on October 8 and 9, 1997, included measurement of water levels and dissolved oxygen in all wells, and phosphate, nitrate and volatile organic concentrations in five monitoring wells.

B. This quarter's highlights, *if any.*

This is the first of at least two successive quarters where the remediation system will be shut down in order to evaluate trends in contaminant concentrations and reclamation system effectiveness. Since the last quarter, the potentiometric surface increased an average of 1.28 feet. This average increase reflects changes in individual wells from a 0.15 foot increase in MW-3 to a 4.04 foot increase in MW-17. In the five wells sampled for laboratory analysis, dissolved phase contaminant concentrations have increased in MW-1, MW-10, MW-12 and MW-14, and remained below detectable limits in MW-18. No free product was observed at the site during the seventh quarterly sampling event. The contaminant plume appears to have expanded slightly since the system was shut off, however non-detectable concentrations in down gradient monitoring well MW-18 indicate the plume remains contained. Approximately 7660 pounds of hydrocarbons were removed by the soil vapor extraction system prior to system shut down.

II. ACTIVITIES PERFORMED DURING THIS QUARTER:

A. Brief description of remediation system and date installed. *(Figure 1)*

The air sparging / soil vapor extraction remediation system at the Halliburton Services site became fully operational during the week of December 7, 1995. The air sparging system is comprised of 19 air sparging wells configured into five lines connected to an air compressor. The soil vapor extraction system is comprised of 8 vapor extraction wells and two vapor extraction trenches configured into five lines connected to a vapor extraction blower. Figure 1 illustrates the site with the remediation system. The original 7.5 horsepower (HP) blower motor for the soil vapor extraction system failed during June, 1996 and was replaced by a 15 HP motor during the first week of August 1996. The soil vapor extraction blower subsequently failed early in the fourth quarter of system operation as a result of water being pulled through the system. In January, 1997, the blower was replaced and has operated correctly since. As per the SMA workplan dated January 21, 1997 and approved by NMED on February 24, 1997, the remediation system at the Halliburton Services release site was shut down at the end of the sixth quarter of monitoring in July, 1997.

B. Description of activities performed to keep system operating properly including: inspections, maintenance procedures and modifications, *if any*.

N / A

C. Monitoring activities performed. *(Figures 2 & 3)*

Quarterly monitoring, conducted on October 8 and 9, 1997, included measurement of water levels and dissolved oxygen in all wells, and phosphate, nitrate and volatile organic concentrations in five monitoring wells. Figure 2 illustrates the contaminant concentrations measured in the groundwater during the seventh quarter monitoring event. Figure 3 illustrates the potentiometric surface measured during the seventh quarterly monitoring event. Elevations shown in Figure 3 are based on a datum established by the top of casing of monitoring well MW-6 = 100.00 feet. The groundwater gradient for the seventh quarter is approximately 0.014 ft/ft to the southeast, which is similar to the gradient found during previous quarters of monitoring. Table 4 contains all data used to construct Figure 3 as well as all historical data for water levels at the Halliburton site.

Appendix 1 contains information regarding the sampling protocol used by SMA at the Halliburton site during the monitoring events. Field notes from the monitoring events are contained in Appendix 3.

D. System performance and effectiveness--include discussion on estimated amount of hydrocarbon removed in preceding quarter and amount removed to date and provide confidence of the determination. *(Figure 4)*

As previously mentioned above in Section II.A., the reclamation system was shut down in July 1997, the end of the sixth quarter, and remained off for the seventh quarter of monitoring. Table 2 summarizes vapor monitoring results from each of the sampling events where effluent levels were measured while the system was in operation. Approximately 7660 pounds (or 1160 gallons) of gasoline were removed by the soil vapor extraction system prior to system shut down.

E. Statement verifying containment of release.

As will be shown in Section III, the results of laboratory analysis of the water samples do not indicate a loss of containment of the contamination associated with the Halliburton underground storage tank release.

III. SUMMARY AND CONCLUSIONS:

A. Discussion of any trends or changes noted in analytical results or site conditions.

The results of testing for dissolved oxygen content within the aquifer (presented in Appendix 8) indicate that since the system was shut down at the end of the sixth quarter of monitoring, dissolved oxygen concentrations have generally decreased in monitoring wells located within the contaminant plume. Monitoring wells located outside of the contaminant plume contain dissolved oxygen levels similar to those found during previous quarterly monitoring events. It is likely that dissolved oxygen concentrations are being influenced by biotic remediation of the remaining contaminants. Phosphate and nitrate concentrations have remained approximately the same since the system was shut down.

The dissolved phase contaminant levels in four of the five monitoring wells sampled have increased since the last quarter. Table 1 contains all analytical results from this and previous monitoring events. Appendix 6 contains copies of the analytical laboratory data sheets. Groundwater elevation levels at the Halliburton site exceeded the previous historical high levels (recorded as far back as July 1991) in all 16 wells measured at the conclusion of the seventh quarter.

No free product was noted at the site in any monitoring well during the seventh quarterly sampling event. This reflects a reduction of at least six inches in three of the monitoring wells at the site since December 1995.

B. Ongoing assessment of remediation system.

The remediation system was shut down during this quarter of monitoring activities, therefore an assessment of the remediation system cannot be made.

C. Recommendations.

SMA anticipates that a total of a total of four quarters of monitoring will be required to establish trends of contaminant concentrations with the reclamation system shut down. Following this period of monitoring, a determination of whether or not the reclamation system should be restarted will be made. Factors included in this decision include:

- Fluctuating contaminant concentrations due to changes in potentiometric surface elevation
- Documentation of natural attenuation processes
- Identification of potential local contaminant receptors
- Cost/benefit analysis of operating the reclamation system for continued rapid contaminant reduction vs. long term monitoring of natural attenuation processes

Continued changes to contaminant levels are expected over the coming quarters. No trends will likely be identified for at least three more quarters.

FIGURES

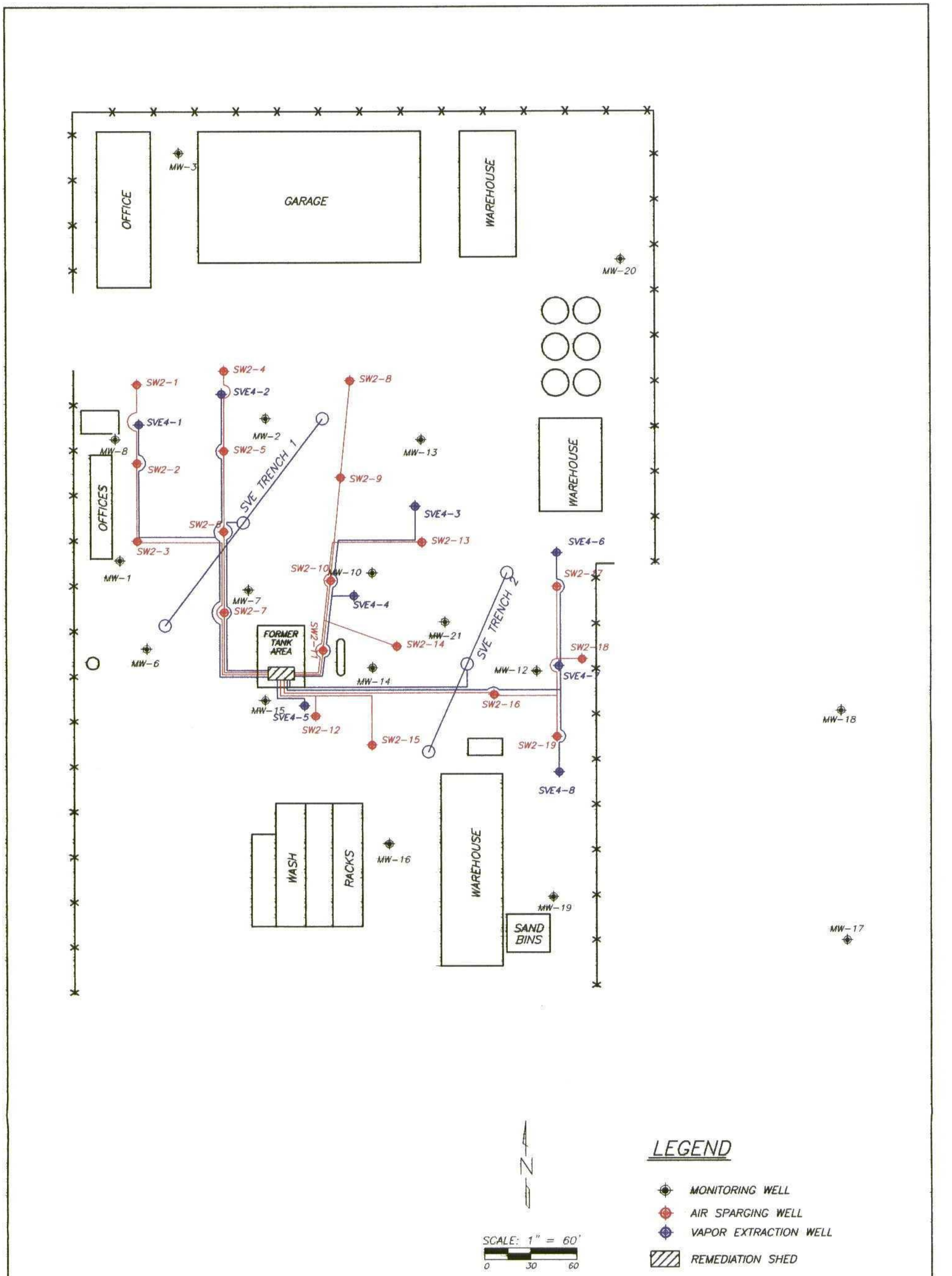
1. Site map
2. Groundwater concentration map
3. Water level map
4. Graphs demonstrating hydrocarbon removal vs. Time
5. Hydrograph of Monitoring Well MW-12

TABLES

1. Laboratory results of groundwater sample analyses
2. Vapor monitoring results
3. ~~Laboratory results of soil sample analyses~~ N/A
4. Water level measurements
5. ~~Hydrocarbon removed as free product~~ N/A
6. ~~Summary of free product levels~~ N/A
7. ~~Summary of information pertaining to system as applicable e.g.,~~
    a. ~~Flow meter readings~~ Please refer to Appendix 3
    b. ~~Air emissions~~ Please refer to Appendix 3
    c. ~~Pumping rates of recovery wells~~ N/A
8. Summary of maintenance procedures including:
    a. names of individuals performing the maintenance
    b. tasks performed
    c. periods of when system was inoperative

APPENDICES

1. Sampling protocol
2. Calculations with explanations (including assumptions) for hydrocarbon removal
3. Field notes/telemetry logs
4. ~~Soil boring logs~~ N/A
5. ~~Monitoring well completion diagrams~~ N/A
6. Laboratory reports
7. Health and safety plan
8. Summary of Well Bench Tests



SITE MAP WITH REMEDIATION SYSTEM
HALLIBURTON ENERGY SERVICES
ARTESIA, NEW MEXICO

FIGURE 1

REVISIONS			
BY	DATE	DESCR.	
BY	DATE	DESCR.	
BY	DATE	DESCR.	

DRAWN	LNK 10-97
CHECKED	KET 10-97 NMCS #008
APPROVED	KET 10-97 NMCS #008

SOUDER, MILLER & ASSOCIATES
CIVIL/ENVIRONMENTAL SCIENTISTS & ENGINEERS
250 Seventeenth Street, Suite B
Las Cruces, New Mexico 88005
(505) 647-0799
Santa Fe - Farmington
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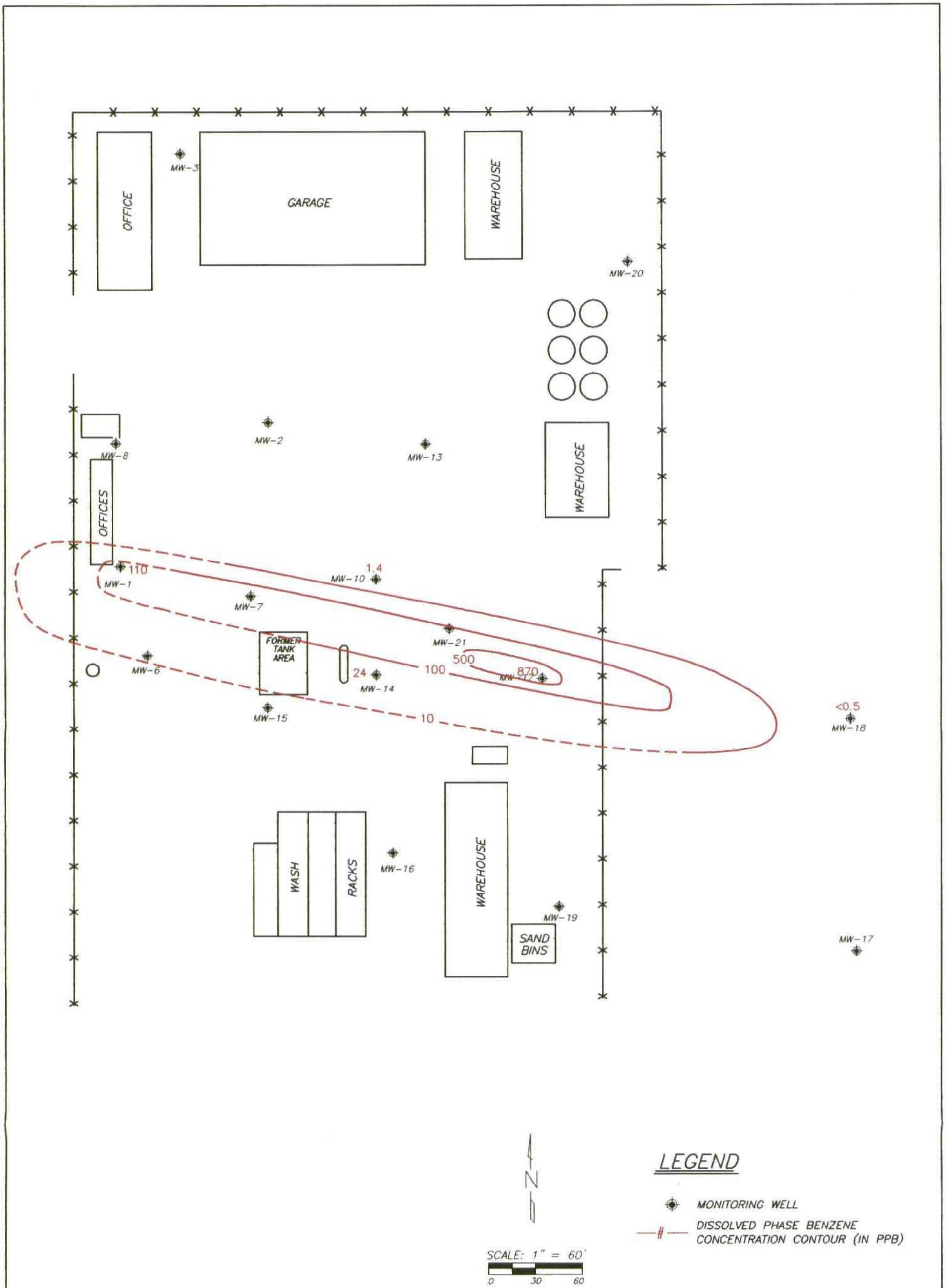
3559-1
1-98



DISSOLVED PHASE BENZENE CONTAMINANT CONCENTRATION MAP
HALLIBURTON ENERGY SERVICES
ARTESIA, NEW MEXICO

FIGURE 2a

3559-2A
1-98

REVISIONS
BY _____ DATE _____ DESCR. _____
BY _____ DATE _____ DESCR. _____
BY _____ DATE _____ DESCR. _____

DRAWN LNK 10-97
CHECKED KET 10-97 NMCS #008
APPROVED KET 10-97 NMCS #008

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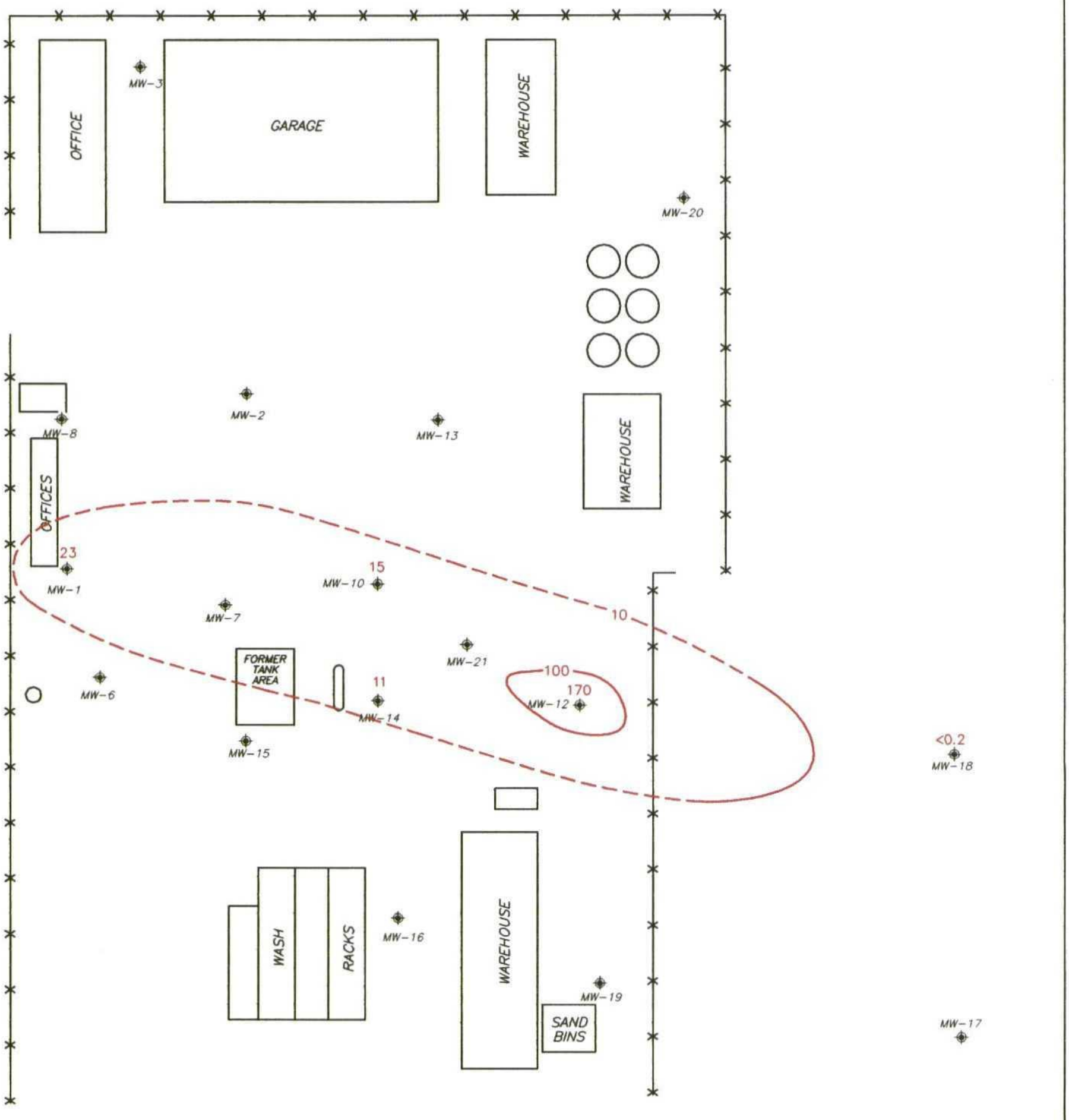

DISSOLVED PHASE EDC CONTAMINANT CONCENTRATION MAP
HALLIBURTON ENERGY SERVICES
ARTESIA, NEW MEXICO

FIGURE 2b

REVISIONS			
BY	DATE	DESCR.	
BY	DATE	DESCR.	
BY	DATE	DESCR.	

DRAWN	LNK 10-97
CHECKED	KET 10-97 NMCS #008
APPROVED	KET 10-97 NMCS #008

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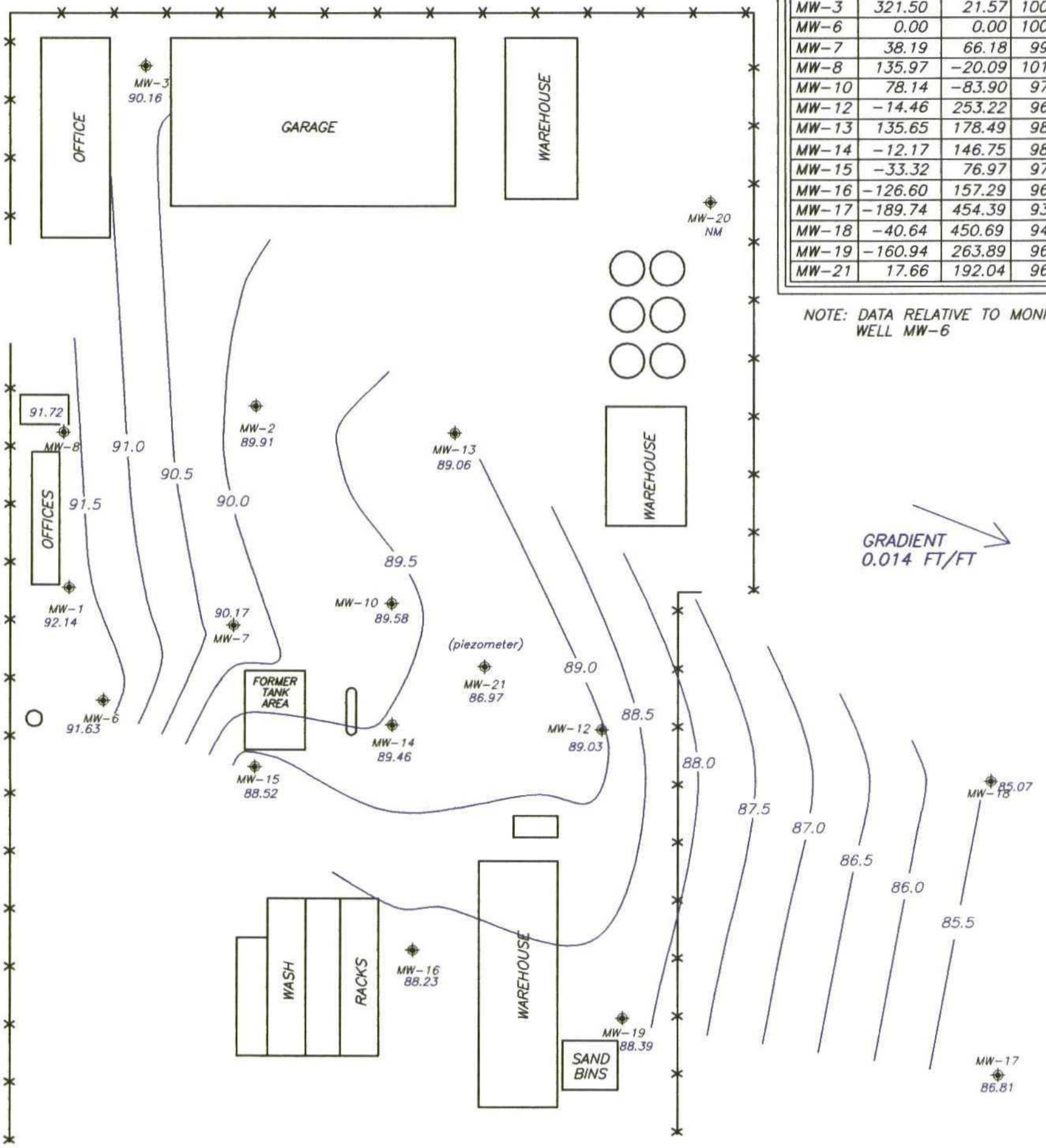
MONITOR WELL LOCATIONS			
NAME	NORTHING	EASTING	ELEVATION (IN FEET)
MW-1	57.11	-17.26	100.25
MW-2	149.43	77.41	99.88
MW-3	321.50	21.57	100.94
MW-6	0.00	0.00	100.00
MW-7	38.19	66.18	99.17
MW-8	135.97	-20.09	101.05
MW-10	78.14	-83.90	97.96
MW-12	-14.46	253.22	96.74
MW-13	135.65	178.49	98.90
MW-14	-12.17	146.75	98.03
MW-15	-33.32	76.97	97.44
MW-16	-126.60	157.29	96.25
MW-17	-189.74	454.39	93.08
MW-18	-40.64	450.69	94.24
MW-19	-160.94	263.89	96.70
MW-21	17.66	192.04	96.73

NOTE: DATA RELATIVE TO MONITOR WELL MW-6



N

SCALE: 1" = 60'

0 30 60

LEGEND

- MONITORING WELL
- POTENTIOMETRIC SURFACE CONTOUR (IN FEET)

POTENTIOMETRIC SURFACE MAP
HALLIBURTON ENERGY SERVICES
ARTESIA, NEW MEXICO

FIGURE 3

3559#3
1-98

REVISIONS
BY _____ DATE _____ DESCR. _____
BY _____ DATE _____ DESCR. _____
BY _____ DATE _____ DESCR. _____

DRAWN LNK 10-97
CHECKED KET 10-97 NMCS #008
APPROVED KET 10-97 NMCS #008

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CIVIL/ENVIRONMENTAL SCIENTISTS & ENGINEERS
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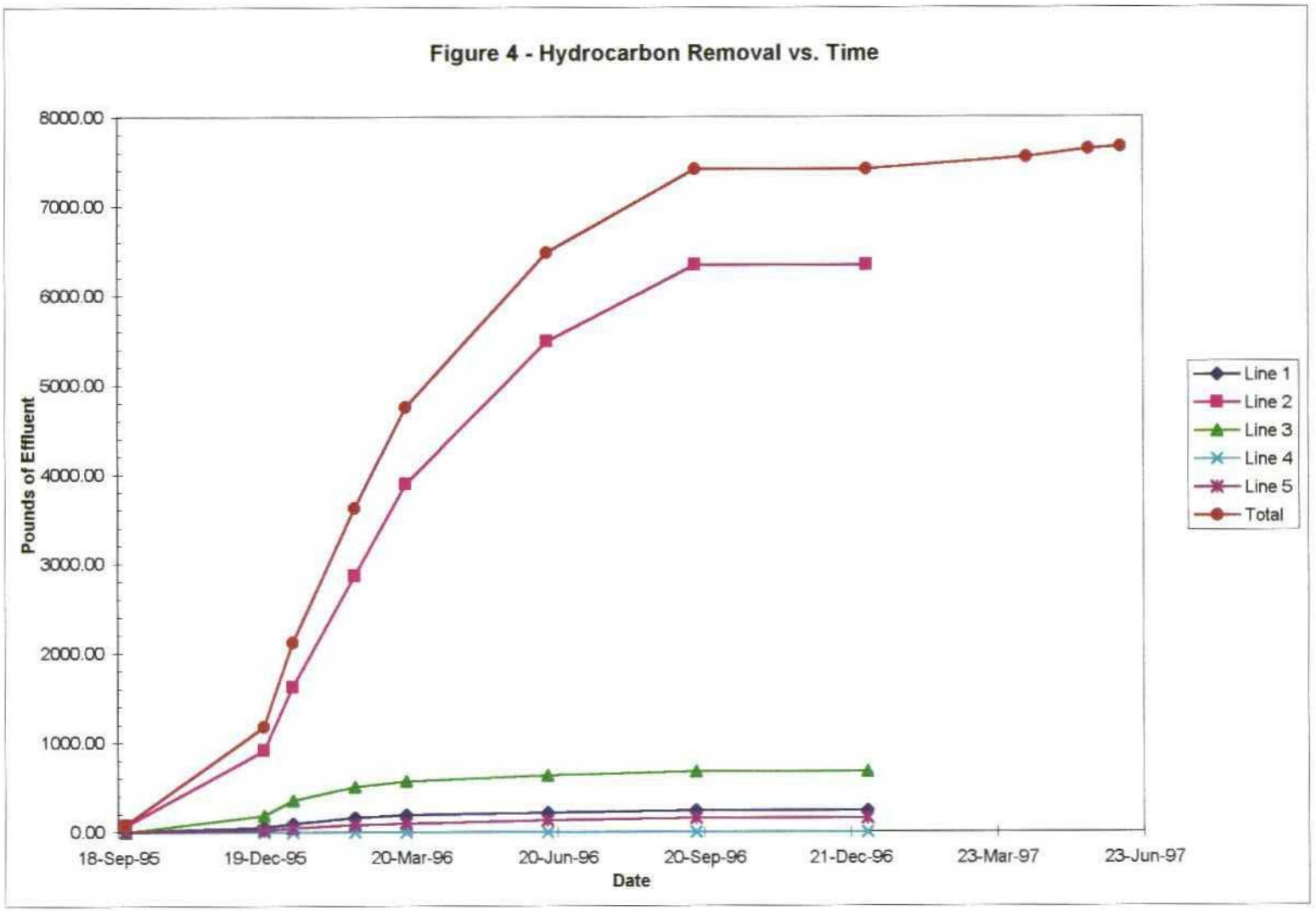
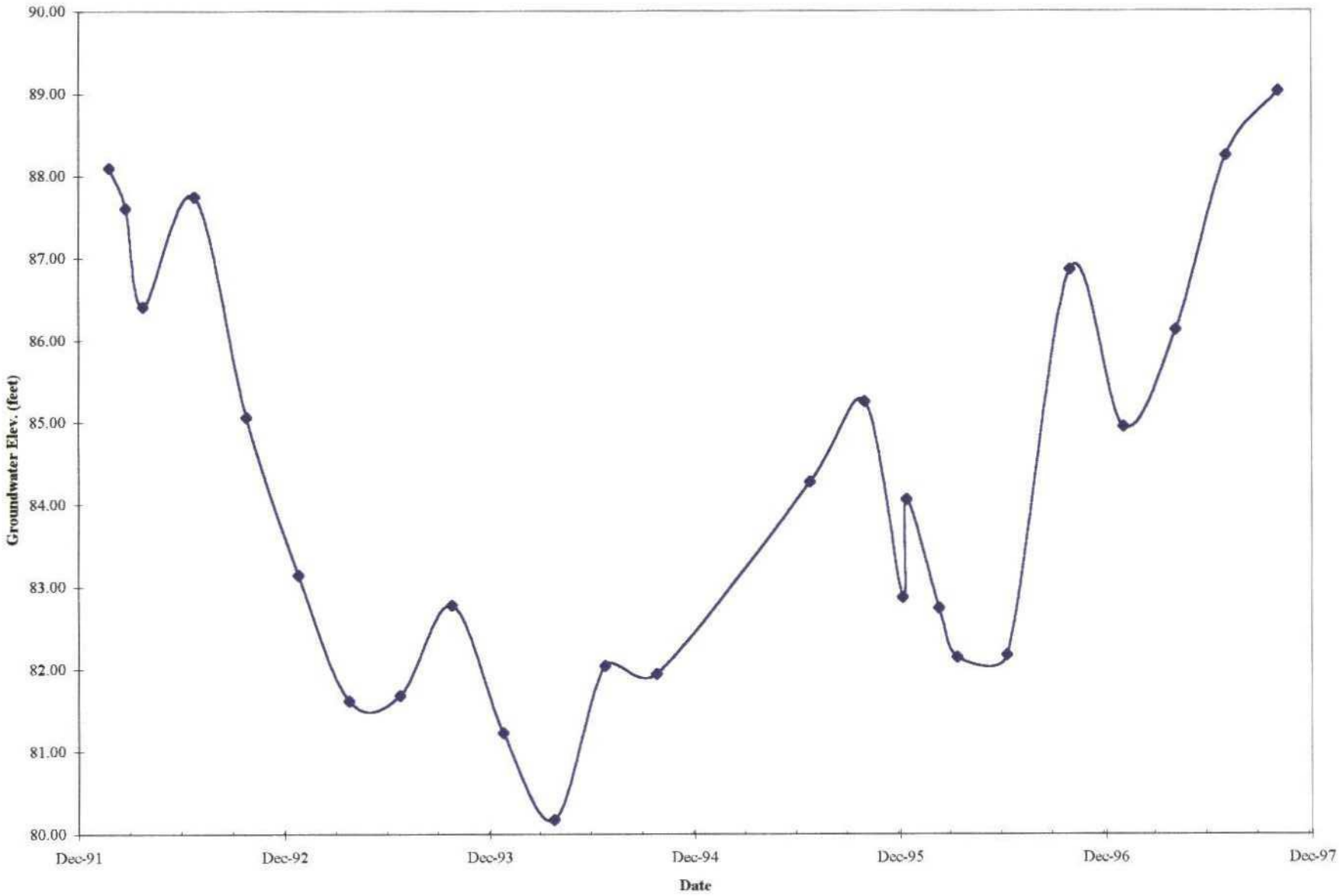


Figure 4 - Hydrocarbon Removal vs. Time
8000.00
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
Pounds of Effluent
18-Sep-95
19-Dec-95
20-Mar-96
20-Jun-96
20-Sep-96
21-Dec-96
23-Mar-97
23-Jun-97
Date
Line 1
Line 2
Line 3
Line 4
Line 5
Total

Figure 5 - Hydrograph of Monitoring Well MW-12



Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

Table 1 - Laboratory results of Groundwater Sample Analysis

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-1							
Date	B	T	E	X	EDB	EDC	MTBE
Dec-90	*490*	*4.5*	*7.4*	*950*	*38*	*70*	*<1.0*
13-Jul-95	250	12	51	5.5	0.01	23	<1.0
1-Jan-96	98	20	7.1	15	2.7	47	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	0.46	43	<2.5
17-Mar-96	1.6	<0.5	<0.5	<0.5	0.04	37	<2.5
14-Jun-96	<0.5	<0.5	<0.5	<0.5	0.01	27	<2.5
4-Oct-96	530	130	17	1800	4.5	29	<6.3
6-Jan-97	480	<5.0	24	200	1.2	30	<25
11-Apr-97	240	0.6	31	2.2	<0.05	30	<2.5
9-Jul-97	7.6	<0.5	2.1	2.0	<0.01	20.4	<2.5
9-Oct-97	110	1.0	26	5.6	<0.01	23	<2.5

MW-2							
Date	B	T	E	X	EDB	EDC	MTBE
Dec-90	*ND*	*ND*	*ND*	*ND*	*ND*	*41.8*	*<1.0*
Jan-92	*2,000*	*1,800*	*2,800*	*3,400*	*ND*	*26*	*<1.0*
Jul-92	200	21	200	100	<0.025	25	<12.5
Jan-93	8,600	330	1,400	510	<0.025	41	<250
13-Jul-95	4,200	48	2,000	950	<0.01	33	<100
17-Mar-96	450	<2.5	45	<2.5	<0.05	26	<13
14-Jun-96	570	1	130	2	<0.01	24	<2.5
4-Oct-96	32	<0.5	<0.5	1	<0.01	22	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	14	<2.5

MW-3							
Date	B	T	E	X	EDB	EDC	MTBE
Dec-90	*ND*	*ND*	*ND*	*ND*	*ND*	*10.06*	*<1.0*
Jan-94	ND	ND	ND	ND	ND	9.1	ND
Apr-94	ND	ND	ND	ND	ND	10	ND
Jul-94	ND	ND	ND	ND	ND	4.8	ND
Oct-94	ND	ND	ND	ND	ND	3.9	ND

MW-4							
Date	B	T	E	X	EDB	EDC	MTBE
13-Jul-95	1,100	7.1	310	39	<0.01	470	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-6							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*4.2*	*0.9*	*<0.5*	*<0.5*	*ND*	*230*	*1.5*
Oct-92	1.9	<0.5	<0.5	<0.5	<0.025	<0.2	<2.5
Apr-93	15	6.9	2.7	12	<0.025	0.4	<2.5
Oct-93	<0.5	<0.5	<0.5	<0.5	<0.025	<0.2	<2.5
13-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
1-Jan-96	<0.5	<0.5	<0.5	<0.5	<0.01	0.3	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	<0.01	1.3	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	0.4	<2.5

MW-7							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*18,000*	*14,000*	*3,500*	*28,000*	*<500*	*230*	*<1.0*
Jul-92	29,000	18,000	2,900	9,300	80	620	<1250
Oct-92	38,000	26,000	3,000	12,000	120	1,100	<250
Jan-93*	41,000	35,000	4,100	14,000	190	1,100	<250
		*free	product:	300ppm	gasoline		
7-Jan-97	780	150	1700	2200	15	57	<100

MW-8							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*2,100*	*210*	*560*	*1,100*	*<50*	*320*	*<50*
Jul-93	3,500	120	1100	1,700	<0.025	250	<250
13-Jul-95	2,600	25	1800	450	<0.01	330	<100
1-Jan-96	110	21	590	390	<0.01	290	<25
14-Feb-96	5.9	<0.5	2.9	1.7	<0.05	190	<2.5
17-Mar-96	1.8	<0.5	0.8	<0.5	<0.02	250	<2.5
14-Jun-96	0.8	<0.5	<0.5	<0.5	0.02	230	<2.5
4-Oct-96	78	0.7	18	0.9	<0.01	71	<2.5
6-Jan-97	44	0.8	33	0.7	<0.01	98	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-10							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*1,100*	*1,800.0*	*360*	*1,400*	*<50*	*10*	*<1.0*
13-Jul-95	10,000	2,300.0	1,800	3,500	0.21	52	<25
17-Mar-96	3.5	<0.5	2.4	24	0.07	41	<2.5
14-Jun-96	1.8	<0.5	0.8	<0.5	0.04	40	<2.5
4-Oct-96	150	8.9	36	37	<0.01	35	<2.5
7-Jan-97	4.2	<0.5	1.4	<0.5	0.02	32	<2.5
10-Apr-97	1.5	<0.5	1.2	<0.5	<0.05	24	<2.5
9-Jul-97	<0.5	<0.5	0.5	<0.5	<0.01	16	<2.5
9-Oct-97	1.4	<0.5	1.3	<0.5	<0.01	15	<2.5

MW-12							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*1,600*	*4,300*	*1,900*	*5,500*	*<200*	*<40*	*<1.0*
Jul-92	18,000	16,000	1,300	6,600	3	310	<1250
Oct-92	20,000	17,000	1,700	7,300	2	490	<250
Jan-93	21,000	4,600	1,500	5,700	0.68	530	<250
Apr-93	21,000	3,600	1,400	5,900	0.52	500	<125
Jul-93	14,000	1,600	1,100	4,600	0.15	410	<250
Oct-93	19,000	2,500	1,300	4,600	0.15	340	<100
Jan-94	16,000	150	1,200	1,000	ND	330	<100
Apr-94	14,000	310	840	350	ND	370	<100
Jul-94	14,000	120	660	75	ND	270	<100
Oct-94	13,000	250	450	240	ND	340	<100
13-Jul-95	15,000	2,000	680	1,200	<0.01	230	<25
1-Jan-96	2,300	350	16	170	<0.01	270	<25
14-Feb-96	90	16	2.8	34	<0.01	210	<6.3
17-Mar-96	17	4.3	1.4	25	<0.01	130	<2.5
14-Jun-96	4.6	0.7	4.2	1.6	<0.01	120	<2.5
4-Oct-96	840	4.7	260	140	<0.01	150	<2.5
7-Jan-97	1,900	5.2	620	190	<0.01	180	<2.5
10-Apr-97	2,400	10.0	900	640	<0.05	170	<25
8-Jul-97	37	<0.5	12	3.8	<0.01	120	<2.5
9-Oct-97	870	9.2	400	160	<0.01	170	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-13							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*2.8*	*4.6*	*3.4*	*13*	*<1.0*	*<0.2*	*<1.0*
Apr-93	2.8	<0.5	<0.5	0.9	<0.025	<0.2	6.4
Oct-93	<0.5	<0.5	<0.5	<0.5	<0.025	<0.2	<2.5
13-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
1-Jan-96	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	0.7	<2.5

MW-14							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-92	*4,200*	*7,800*	*7,300*	*57,000*	*<5,000*	*<1,000*	*<5,000*
Jul-92	12,000	1,800	6,200	4.8	<100	<100	<1250
Jan-93	21,000	21,000	2,300	7,700	14	210	<250
13-Jul-95	18,000	5,700	2,100	4,600	<0.01	340	<100
17-Mar-96	500	410	460	2,200	0.1	60	<100
14-Jun-96	86	82	270	1,600	0.44	31	<25
4-Oct-96	88	39	34	330	<0.01	47	<6.3
7-Jan-97	44	8.6	22	200	<0.01	26	<25
10-Apr-97	3.1	1.7	8.0	100	<0.01	10	<2.5
8-Jul-97	4.0	4.5	17	82	<0.01	7.0	<2.5
9-Oct-97	24	3.4	11	74	<0.01	11	<2.5

MW-15							
Date	B	T	E	X	EDB	EDC	MTBE
Mar-92	*280*	*140*	*19*	*86*	*NA*	*NA*	*<12.5*
13-Jul-95	42	0.6	<0.5	<0.5	0.01	42	<2.5
6-Jan-97	0.6	<0.5	<0.5	1.2	<0.01	11	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-16							
Date	B	T	E	X	EDB	EDC	MTBE
Mar-92	*<0.5*	*0.8*	*0.9*	*2.7*	*NA*	*NA*	*<2.5*
Jul-92	<0.5	<0.5	<0.5	<0.5	<0.025	14	<2.5
Jan-93	<0.5	<0.5	<0.5	<0.5	<0.025	30	<2.5
Jul-93	<0.5	<0.5	<0.5	<0.5	<0.025	31	<2.5
Oct-93	<0.5	<0.5	<0.5	<0.5	<0.025	38	<2.5
14-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	29	<2.5
1-Jan-96	<0.5	<0.5	<0.5	<0.5	<0.01	17	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	<0.01	17	<2.5
17-Mar-96	<0.5	<0.5	<0.5	<0.5	<0.01	12	<2.5
14-Jun-96	<0.5	<0.5	<0.5	<0.5	<0.01	6.6	<2.5
4-Oct-96	<0.5	<0.5	<0.5	<0.5	<0.01	11	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	5.2	<2.5

MW-17							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-94	<0.5	<0.5	<0.5	<0.5	<0.01	1.0	<2.5
Apr-94	<0.5	<0.5	<0.5	<0.5	<0.01	1.3	<2.5
Jul-94	<0.5	<0.5	<0.5	<0.5	<0.01	0.9	<2.5
Oct-94	<0.5	<0.5	<0.5	<0.5	<0.01	0.8	<2.5
14-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
7-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	0.3	<2.5

MW-18							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-94	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
Apr-94	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
Jul-94	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
Oct-94	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
14-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	0.8	<2.5
1-Jan-96	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	<0.01	0.6	<2.5
17-Mar-96	<0.5	<0.5	<0.5	<0.5	<0.01	0.8	<2.5
14-Jun-96	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
4-Oct-96	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
7-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
10-Apr-97	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
8-Jul-97	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
9-Oct-97	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Summary of Laboratory Results (ppb)
Halliburton, Artesia

MW-19							
Date	B	T	E	X	EDB	EDC	MTBE
Jan-94	ND	ND	ND	ND	ND	21	ND
Apr-94	ND	ND	ND	ND	ND	28	ND
Jul-94	ND	ND	ND	ND	ND	14	ND
Oct-94	ND	ND	ND	ND	ND	20	ND
13-Jul-95	<0.5	<0.5	1.5	<0.5	<0.01	16	<2.5
1-Jan-96	<0.5	<0.5	<0.5	<0.5	<0.01	36	<2.5
14-Feb-96	<0.5	<0.5	<0.5	<0.5	<0.01	35	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	46	<2.5

MW-21							
Date	B	T	E	X	EDB	EDC	MTBE
13-Jul-95	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5
6-Jan-97	<0.5	<0.5	<0.5	<0.5	<0.01	<0.2	<2.5

Italicized entries are from Analytical Technologies Inc., Phoenix. All other data from Hall Environmental Analytical Laboratory, Albuquerque.

Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

Table 2 - Vapor Monitoring Results

Emissions Data
Halliburton Services
Artesia, New Mexico

14-Sep-95

Line	Flow (cfm)	PID (ppm)	Notes
1	nm	127	6" Hg, H_2O
2	nm	112	2.5" Hg
3	nm	na	7" Hg
4	nm	6.9	3.5" Hg
5	nm	91.2	7" Hg

23-Sep-95

Line	Flow (cfm)	PID (ppm)	Notes
1	nm	156	8.5" Hg
2	nm	629	2.0" Hg
3	nm	38.1	H_2O
4	nm	226	3.0" Hg
5	nm	36.3	9.5" Hg

19-Dec-95

Line	Flow (cfm)	PID (ppm)	Notes
1	145	487	8.5" Hg
2	na	1946	rocks in FM, 6.5" Hg
3	130	1418	9" Hg
4	na	na	H_2O
5	118	214	9" Hg

6-Jan-96

Line	Flow (cfm)	PID (ppm)	Notes
1	120	479	8.0"
2	172	1686	
3	102	710	9"
4	na	na	H_2O
5	100	240	9"

14-Feb-96

Line	Flow (cfm)	PID (ppm)	Notes
1	nm	256	
2	nm	1228	
3	nm	255	
4	na	na	H_2O
5	nm	86	

17-Mar-96

Line	Flow (cfm)	PID (ppm)	Notes
1	125	138	
2	165	1712	Strong HC Odor
3	115	185	
4	na	na	H_2O
5	115	100	

14-Jun-96

Line	Flow (cfm)	PID (ppm)	Notes
1	70	35.3	
2	180	730	Strong HC Odor
3	70	87.1	
4	na	na	H_2O
5	75	100	

Emissions Data
Halliburton Services
Artesia, New Mexico

4-Sep-96

Line	Flow (cfm)	PID (ppm)	Notes
1	118	155	12"Hg
2	205	1001	5.5"Hg, Strong HC
3	98	114	11.5"Hg
4	45	nm	>12"Hg
5	115	86.3	10"Hg

4-Sep-96

Line	Flow (cfm)	PID (ppm)	Notes
1	30	nm	With
2	105	nm	All
3	20	nm	SVE
4	30	nm	Lines
5	55	nm	Open

4-Sep-96

Line	Flow (cfm)	PID (ppm)	Notes
1	55	nm	With
2	na	nm	All SVE
3	35	nm	Lines
4	45	nm	Except Line 2
5	75	nm	Open

4-Feb-97

Line	Flow (cfm)	PID (ppm)	Notes
1	60	nm	With
2	nm	nm	All SVE
3	60	nm	Lines
4	nm	nm	Except Line 2
5	60	nm	Open

13-Mar-97

Line	Flow (cfm)	PID (ppm)	Notes
1	nm	nm	With
2	nm	nm	All SVE
3	50	nm	Lines
4	nm	nm	Except Line 2
5	35	nm	Open

11-Apr-97

Line	Flow (cfm)	PID (ppm)	Notes
1	130	40.6	With All
2	nm	nm	SVE Lines
3	125	11.4	Open
4	nm	nm	PID = 35.8 (ppm)
5	nm	nm	

14-May-97

Line	Flow (cfm)	PID (ppm)	Notes
1	125	76.4	With All
2	nm	nm	SVE Lines
3	100	10.5	Open
4	nm	nm	PID = 62.1 (ppm)
5	nm	nm	

Emissions Data
Halliburton Services
Artesia, New Mexico

20-May-97

Line	Flow (cfm)	PID (ppm)	Notes
Sum	160	54.8	

9-Jun-97

Line	Flow (cfm)	PID (ppm)	Notes
Sum	160	47.8	

8-Jul-97

Line	Flow (cfm)	PID (ppm)	Notes
Sum	160	27.3	System shutdown

15-Jul-97

Line	PID (ppm)	Notes
Sum	N/A	System start-up at 0820 hrs
Sum	117	System start-up +40 minutes
Sum	39.2	System start-up +45 minutes
Sum	19.2	System start-up +50 minutes

Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

Table 4 - Water Level Measurements

Summary of Potentiometric Surface Data
Halliburton Services
Artesia, NM

Monitor Well	Surveyed Elevation	Completion Depth	Potentiometric Surface Elevation *(in feet)*										
			Jul-91	Oct-91	Feb-92	Mar-92	Apr-92	Jul-92	Oct-92	Jan-93	Apr-93	Jul-93	Oct-93
MW-1	100.25	NM	88.35	88.95	88.20	NM	NM	NM	NM	82.72	81.70	81.92	83.70
MW-2	99.88	NM	87.33	87.93	87.22	86.83	87.63	87.61	NM	84.42	81.54	81.82	83.48
MW-3	100.94	NM	87.05	87.07	NM	84.55	NM	NM	NM	80.92	80.15	NM	NM
MW-4	99.38	approx 18.0	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
MW-6	100.00	NM	--	--	88.28	87.57	87.37	NM	85.30	83.75	81.85	82.01	83.78
MW-7	99.17	19.00	--	--	87.75	87.02	86.75	87.98	84.66	83.05	81.89	81.81	83.44
MW-8	101.05	NM	--	--	87.95	NM	NM	NM	84.79	82.49	81.61	81.84	84.12
MW-10	98.17	19.08	--	--	87.63	NM	NM	NM	86.89	82.62	81.44	81.49	83.00
MW-12	96.74	19.08	--	--	88.10	87.61	86.41	87.75	85.07	83.15	81.62	81.69	82.78
MW-13	98.90	NM	--	--	86.97	NM	86.53	NM	85.13	82.65	81.56	81.72	83.37
MW-14	98.03	NM	--	--	87.84	NM	86.62	86.48	NM	82.79	81.56	NM	83.05
MW-15	97.44	NM	--	--	--	--	--	86.64	NM	81.38	80.15	80.26	81.83
MW-16	96.25	NM	--	--	--	--	--	86.70	NM	82.07	80.61	80.77	80.03
MW-17	93.08	30.17	--	--	--	--	--	--	--	--	--	--	79.87
MW-18	94.24	29.83	--	--	--	--	--	--	--	--	--	--	80.63
MW-19	96.70	29.42	--	--	--	--	--	--	--	--	--	--	82.23
MW-20	97.22	NM	--	--	--	--	--	--	--	--	--	--	82.79
MW-21	96.73	NM	--	--	--	--	--	--	--	--	--	--	82.12

Notes:
NM - Not Measured

Summary of Potentiometric Surface Data
Halliburton Services
Artesia, NM

Monitor Well	Surveyed Elevation	Potentiometric Surface Elevation *(in feet)*											
		Jan-94	Apr-94	Jul-94	Oct-94	Jul-95	Oct-95	12-Dec-95	19-Dec-95	1-Jan-96	14-Feb-96	17-Mar-96	14-Jun-96
MW-1	100.25	82.46	81.15	81.81	82.62	84.77	85.95	84.57	84.23	83.85	82.73	79.82	86.14
MW-2	99.88	82.24	80.64	81.75	81.83	83.74	85.17	NM	83.25	84.82	82.19	81.92	85.74
MW-3	100.94	82.79	81.69	81.03	81.87	83.43	NM	NM	NM	NM	NM	NM	NM
MW-4	99.38	dry	dry	dry	NM	82.59	84.15	NM	NM	NM	NM	NM	NM
MW-6	100.00	83.78	81.16	81.94	82.77	84.13	86.04	84.61	84.36	84.19	83.19	83.42	84.73
MW-7	99.17	82.20	81.36	81.36	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-8	101.05	83.72	81.52	81.89	82.57	84.43	85.84	NM	84.30	88.74	83.03	85.70	83.62
MW-10	98.17	81.67	80.65	81.61	82.09	83.95	84.96	NM	82.85	82.92	81.92	81.52	82.75
MW-12	96.74	81.23	80.18	82.05	81.95	84.28	85.26	82.88	84.07	NM	82.75	82.15	82.18
MW-13	98.90	82.10	80.91	81.88	82.23	83.51	82.98	NM	83.56	83.26	82.57	82.02	82.65
MW-14	98.03	81.63	80.23	81.88	NM	84.10	85.05	NM	82.91	83.76	NM	82.71	83.94
MW-15	97.44	80.48	79.33	80.35	80.89	84.97	83.93	82.27	82.02	82.57	81.89	82.04	79.75
MW-16	96.25	80.49	79.30	81.13	81.25	83.33	84.12	82.08	82.07	82.04	81.35	80.97	81.49
MW-17	93.08	78.46	77.20	81.16	79.34	82.75	82.25	NM	78.44	78.58	75.45	76.87	77.66
MW-18	94.24	79.49	78.61	81.15	80.12	82.17	82.26	NM	79.40	79.59	78.66	78.08	79.30
MW-19	96.70	80.68	79.58	83.31	81.88	85.48	84.95	81.74	81.69	82.04	80.94	80.21	80.76
MW-20	97.22	81.73	80.71	82.05	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-21	96.73	80.72	79.72	80.90	81.01	82.90	84.11	82.17	82.32	81.61	81.03	80.56	80.78

Notes:
NM - Not Measured

Summary of Potentiometric Surface Data
Halliburton Services
Artesia, NM

Monitor Well	Surveyed Elevation	Potentiometric Surface Elevation *(in feet)*						
		4-Oct-96	6-Dec-96	7-Jan-97	11-Apr-97	8-Jul-97	15-Jul-97	8-Oct-97
MW-1	100.25	89.38	89.98	87.62	88.71	90.84	91.23	92.14
MW-2	99.88	86.73	87.40	85.77	86.95	88.70	89.27	89.91
MW-3	100.94	NM	NM	NM	88.97	89.67	90.01	90.16
MW-4	99.38	NM	NM	NM	NM	NM	NM	NM
MW-6	100.00	88.97	NM	87.74	88.66	90.98	90.98	91.63
MW-7	99.17	NM	NM	86.45	87.18	89.31	89.57	90.17
MW-8	101.05	89.00	NM	87.58	89.17	90.80	90.76	91.72
MW-10	98.17	87.42	87.11	85.36	86.5	88.29	88.44	89.58
MW-12	96.74	86.86	86.21	84.95	86.13	88.25	87.1	89.03
MW-13	98.90	86.68	NM	86.30	86.63	88.25	88.24	89.06
MW-14	98.03	87.92	NM	85.48	87.34	88.55	87.51	89.46
MW-15	97.44	87.03	NM	84.85	86.70	87.78	87.92	88.52
MW-16	96.25	86.48	NM	84.39	85.21	87.28	87.18	88.23
MW-17	93.08	83.16	NM	82.56	82.1	83.99	83.23	87.27
MW-18	94.24	85.32	83.62	82.87	82.92	84.53	83.92	86.81
MW-19	96.70	86.99	NM	83.86	85.04	87.36	86.71	88.39
MW-20	97.22	NM	NM	NM	NM	NM	NM	NM
MW-21	96.73	86.27	85.75	84.42	83.99	87.17	86.55	86.97

Notes:
NM - Not Measured

Form 1216
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Table 8 - Summary of Maintenance Procedures

Maintenance

Date	Technician(s)	Activity											
		Air Sparging Shed						VES Shed					Additional Notes
		Drain Compressor	Check					Check					
			Filters	Belts	Oil Level / Quality	Flowmeters	Solenoids	Filter	Belts	Oil Level / Quality	Flowmeters	Solenoids	
14-Sep-95	KET	X	X	X	X	X	X	X	X	X	X	X	none
23-Sep-95	KET, JRZ	X	X	X	X	X	X	X	X	X	X	X	none
6-Oct-95	KET, JRZ	N/A	X	A	X	X	X	X	X	X	X	X	none
19-Dec-95	KET, JRZ	N/A	X	X	X	X	X	X	X	X	C	X	none
6-Jan-96	KET, JRZ	N/A	X	X	X	X	X	X	X	X	X	X	none
14-Feb-96	JRZ, LNK	N/A	X	X	X	X	X	X	X	X	X	X	none
17-Mar-96	JRZ, LNK	N/A	X	X	X	X	X	X	X	X	X	X	none
14-Jun-96	LNK	N/A	X	X	X	X	X	X	X	R	X	X	none
4-Sep-96	LNK, KET	N/A	X	X	X	X	X	C	X	A	C	X	none
4-Oct-96	LNK, TP	N/A	X	X	X	X	X	C	X	X	X	X	none
6-Dec-96	LNK, KET	N/A	R	X	X	X	X	N/A	N/A	N/A	X	X	Blower shut down
6-Jan-97	LNK, KET	N/A	X	X	X	X	X	N/A	N/A	N/A	X	X	Blower shut down
4-Feb-97	LNK, KET,DJE	N/A	X	X	X	X	X	R	R	R	X	X	Replaced SVE blower
13-Mar-97	DJE	N/A	X	X	X	X	X	X	X	X	X	X	none
11-Apr-97	LNK	X	C	X	X	X	X	C	X	R	X	X	none
14-May-97	LNK	X	R	X	X	X	X	C	X	R	X	X	AS Line 5 leaking
20-May-97	KET, DJE	X	R	X	X	X	X	R	X	X	X	X	Repair AS Line 5
9-Jun-97	LNK	X	X	X	X	X	X	X	X	X	X	X	none
8-Jul-97	LNK	X	X	X	X	X	X	X	X	X	X	X	System Shutdown/WP
15-Jul-97	LNK	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Switched off breakers
8-Oct-97	LNK	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	none

X = Checked
A = Adjusted
R = Replaced
C = Cleaned

Form 1216
Site Name Halliburton Services
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Appendix 1 - Sampling Protocol

Exceptions to USTB Standard Sampling Protocol

The only exception to USTB standard sampling protocol is in the area of monitoring well purging. Where possible, a minimum of three well bore volumes of water were purged before sampling. Where this was prevented by insufficient water supply, the wells were bailed until dry prior to sampling. *There is likely no visible loss of data integrity due to the changed procedure.*

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Appendix 2 - Calculations with Explanations for Hydrocarbon Removal

CALCULATION METHOD PRIOR TO JANUARY, 1997

Time cycles of each line as a combination of lines

The amount of time each line runs exclusively or as a combination of other lines. A distinction is made between lines comprised of wells and those comprised of trenches.

Line #	Amount of Active Time (*in minutes*)				
	Exclusive	w/ one set of wells	w/ two sets of wells	w/one trench & one set of wells	w/ one trench
1	0	0	0	45	270
2	0	540	45	0	0
3	135	45	0	0	270
4	Not in Use				
5	135	45	0	45	0

Calculations of flow through individual lines

Flow through each of the lines is calculated in terms of total cubic feet of effluent per day and then averaged as cfm over a 24 hour period.

Assumptions:

Flow through each of the lines attached to sets of wells can be averaged to a common value; 120 cfm.

Flow through each of the lines attached to a horizontal extraction line can be averaged; 170 cfm.

Flow which occurs as a combination of lines (wells and trenches) can be weighted based on observed results. For example, 1 line with wells and 1 line with a trench yields a total estimated flow of approximately 190 cfm of which 140 cfm comes from the trench and 50 cfm comes from the wells. Similarly 2 lines with wells and 1 line with a trench yields a total estimated flow of approximately 200 cfm of which 120 cfm comes from the trench and 40 cfm comes from each of lines with wells.

Line #	Total cubic feet of effluent per day	Total cubic feet of effluent per minute (over a 24-hour period)
1	18,000	12.5
2	81,000	56.25
3	32,400	22.5
4	0	0
5	20,700	14.375

Total hydrocarbon removed as effluent

Using the total cubic feet of effluent per minute (over a 24-hour period) as shown in the above table, and the average value of effluent concentration over the sampling period as shown in Table 2 of the main report form, the total hydrocarbons removed for the sampling interval can be estimated by the following equation:

$$TH = Q * ((C_{effluent1} + C_{effluent2}) / 2) * MW * 1.581 * 10^{-7} * 24 * D$$

where TH = Total hydrocarbons, lbs

Q = Flow rate (as calculated in the above table), cfm

$C_{effluent1}$ = Effluent concentration at the beginning of the sampling period (as shown in Table 2 of the main report form), ppm

$C_{effluent2}$ = Effluent concentration at the beginning of the sampling period (as shown in Table 2 of the main report form), ppm

MW = Molecular weight of contaminant (102.2)

1.581 * 10-7 = Conversion factor
24 = Hours per day
D = Days in sampling period

For example, considering the time sampling period between September 14 and September 23, 1995 on Line 2:

$TH = 56.25 * ((112 + 629) / 2) * 102.2 * 1.581 * 10^{-7} * 24 * 9$
TH = 72.73 lbs

CALCULATION METHOD AFTER JANUARY, 1997

Total hydrocarbon removed as effluent

Using the total cubic feet of effluent per minute (over a 16-hour per day system operation period) and the average value of effluent concentration over the sampling period as shown in Table 2 of the report form, the total hydrocarbons removed over the sampling interval can be estimated by the following equation:

$$TH = Q * ((C_{effluent1} + C_{effluent2}) / 2) * MW * 1.581 * 10^{-7} * 24 * D$$

where TH = Total hydrocarbons, lbs
Q = Flow rate, cfm
$C_{effluent1}$ = Effluent concentration at the beginning of the sampling period (as shown in Table 2 of the main report form), ppm
$C_{effluent2}$ = Effluent concentration at the ending of the sampling period (as shown in Table 2 of the main report form), ppm
MW = Molecular weight of contaminant (102.2)
1.581 * 10-7 = Conversion factor
16 = Hours of System Operation per day
D = Days in sampling period

For example, considering the time sampling period between January and April, 1997:

$TH = 160 * ((35.8 + 35.8) / 2) * 102.2 * 1.581 * 10^{-7} * 16 * 90$
TH = 133 lbs

Form 1216
Site Name Halliburton Services
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Appendix 3 - Field Notes / Telemetry Logs

Gloves - III

* Heavy rains night of 10-7-97, possible effect on MWs?

Souder, Miller & Associates

Date: 10-8-97 & 10-9-97 Technician(s): LNK

Project Name: Halliburton Services Project Location: Artesia, New Mexico

Weather: Mostly sunny, windy & warm, humid

Equipment: DO, NO_3, & PO_4 Kits, Water Meter, Bucket, Nitrile gloves, 40 ml VOA, misc tools

Vapor Extraction System Data			
Line	Flow (cfm)	PID (ppm)	Notes
1			
2			
3		N/A	
4			
5			
Blower Temperature			
Hourmeter			

Air Sparging System Data				
Line	PRV (psi) Active	PRV (psi) Inactive	Flow (cfm)	Notes
1				
2				
3		N/A		
4				
5				
Hourmeter				
Electric Meter Data			Current	(kwh)

Monitoring Well Data

Well #	Time	D.T.W. (feet)	D.O. (ppm)	PO_4 (ppm)	N (ppm)	Purged (gallons)	pH	Cond.	
MW-1 10-8	~~1725~~ 1804	8.11	ND	ND	ND		sample @ 1828		
MW-2 10-9	0756	9.97	ND					strong HC-like odor	
MW-3 10-9	0828	10.78	ND					septic (slight) odor	
~~MW-4~~									
MW-6 10-8	1725	8.37	0.6						
MW-7 10-8	1735	9.00	ND					strong HC odor, stringers	
MW-8 10-9	0814	9.33	ND					strong HC odor	
MW-10 10-8	1642	8.59	1.4	0.1	0.09	5	sample @	1716	
MW-12 10-8	1535	7.71	0.4	0.9	ND	3.5 dry	Sample @	1600	, yellowish color HC odor
MW-13 10-9	0844	9.84	3.2						
MW-14 10-8	1610	8.57	ND	ND	ND	3.5 dry	sample @	1635	strong HC smell ↳ "old HC" ↳ black discoloration ↳ stringers
MW-15 10-9	0922	8.92	ND						
MW-16 10-9	0933	8.02	0.4						
10-9* MW-17 10-8	1510	~~5.60~~ (5.81)	ND/(1.2)						
10-9* MW-18 10-8	1400	~~9.17~~ (7.43)	1.0	1.3	0.12	5	sample @	1455	
MW-19 10-9	0941	8.31	0.2						
~~MW-20~~									
MW-21 10-9	0910	9.76	1.4						

* = re-test DTW + DO

Form 1216
Site Name Halliburton Services
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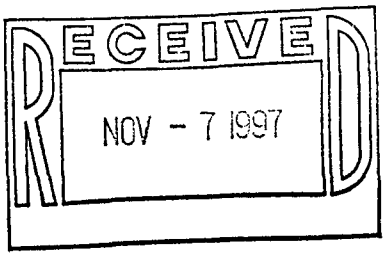
Appendix 6 - Laboratory Reports

Hall Environmental
Analysis Laboratory, Inc.



Hall Environmental Analysis Laboratory
4901 Hawkins N.E.
Albuquerque, NM 87109
(505)345-3975

10/22/97

Souder, Miller and Associates, Inc.
250 Seventeenth St., Suite B
Las Cruces, NM 88005

Dear Mr. Karl Tonander,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

10/30/97

Scott Hallenbeck, Lab Manager

Project: 9710036/Halliburton

Results for sample: MW-1

Date collected: 10/8/97	Date received: 10/9/97
Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-1
Project Manager: Karl Tonander	Sampled by: LNK
Matrix: Aqueous	

Test: EPA 8021

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	110	PPB (µg /L)
Toluene	1.0	PPB (µg /L)
Ethylbenzene	26	PPB (µg /L)
Total Xylenes	5.6	PPB (µg /L)
1,3,5-TMB	<0.5	PPB (µg /L)
1,2,4-TMB	17	PPB (µg /L)

BFB (Surrogate) Recovery = 98%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	23	PPB (µg /L)

BCM (Surrogate) Recovery = 104%

Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for sample: MW-10

Date collected: 10/8/97	Date received: 10/9/97
Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-2
Project Manager: Karl Tonander	Sampled by: LNK
Matrix: Aqueous	

Test: EPA 8020

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	1.4	PPB (µg /L)
Toluene	<0.5	PPB (µg /L)
Ethylbenzene	1.3	PPB (µg /L)
Total Xylenes	<0.5	PPB (µg /L)
1,3,5-TMB	<0.5	PPB (µg /L)
1,2,4-TMB	0.6	PPB (µg /L)

BFB (Surrogate) Recovery = 102%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	15	PPB (µg /L)

BCM (Surrogate) Recovery = 107%

Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for sample: MW-12

Date collected: 10/8/97	Date received: 10/9/97
Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-3
Project Manager: Karl Tonander	Sampled by: LNK
Matrix: Aqueous	

Test: EPA 8020

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	870	PPB (µg /L)
Toluene	9.2	PPB (µg /L)
Ethylbenzene	400	PPB (µg /L)
Total Xylenes	160	PPB (µg /L)
1,3,5-TMB	2.4	PPB (µg /L)
1,2,4-TMB	270	PPB (µg /L)

BFB (Surrogate) Recovery = 94%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	170	PPB (µg /L)

BCM (Surrogate) Recovery = 102%
Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for sample: MW-14

Date collected: 10/8/97	Date received: 10/9/97
Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-4
Project Manager: Karl Tonander	Sampled by: LNK
Matrix: Aqueous	

Test: EPA 8020

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	24	PPB (µg /L)
Toluene	3.4	PPB (µg /L)
Ethylbenzene	11	PPB (µg /L)
Total Xylenes	74	PPB (µg /L)
1,3,5-TMB	53	PPB (µg /L)
1,2,4-TMB	410	PPB (µg /L)

BFB (Surrogate) Recovery = 98%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	11	PPB (µg /L)

BCM (Surrogate) Recovery = 105%

Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for sample: MW-18

Date collected: 10/8/97	Date received: 10/9/97
Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-5
Project Manager: Karl Tonander	Sampled by: LNK
Matrix: Aqueous	

Test: EPA 8020

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	<0.5	PPB (µg /L)
Toluene	<0.5	PPB (µg /L)
Ethylbenzene	<0.5	PPB (µg /L)
Total Xylenes	<0.5	PPB (µg /L)
1,3,5-TMB	<0.5	PPB (µg /L)
1,2,4-TMB	<0.5	PPB (µg /L)

BFB (Surrogate) Recovery = 93%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	<0.2	PPB (µg /L)

BCM (Surrogate) Recovery = 95%
Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for QC: Reagent Blank
Extraction Blank

Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: RB 10/13, EB 10/22
Project Manager: Karl Tonander	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8020

Compound	Amount	Units
MTBE	<2.5	PPB (µg/L)
Benzene	<0.5	PPB (µg /L)
Toluene	<0.5	PPB (µg /L)
Ethylbenzene	<0.5	PPB (µg /L)
Total Xylenes	<0.5	PPB (µg /L)
1,3,5-TMB	<0.5	PPB (µg /L)
1,2,4-TMB	<0.5	PPB (µg /L)

BFB (Surrogate) Recovery = 100%
Dilution Factor = 1

Test: EPA 8010

Compound	Amount	Units
EDC	<0.2	PPB (µg /L)

BCM (Surrogate) Recovery = 98%
Dilution Factor = 1

Test: EPA 504

Compound	Amount	Units
EDB	<0.01	PPB (µg /L)

Dilution Factor = 1

Results for QC: Matrix Spike/ Matrix Spike Dup
Blank Spike / Blank Spike Dup

Date extracted: 10/22/97	Date analyzed: 10/13,22/97
Client: Souder, Miller and Associates, Inc.	
Project Name: Halliburton	HEAL #: 9710036-5 MS/MSD
Project Manager: Karl Tonander	BS/BSD 10/22
Matrix: Aqueous	Units: PPB (µg /L)

Test: EPA 8020

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
MTBE	<2.5	40.0	46.0	115	48.2	121	5
Benzene	<0.5	20.0	20.1	101	21.0	105	4
Toluene	<0.5	20.0	19.8	99	20.5	103	3
Ethylbenzene	<0.5	20.0	19.8	99	20.7	104	4
Xylenes	<0.5	60.0	59.0	98	62.5	104	6
1,3,5-TMB	<0.5	20.0	19.5	98	20.4	102	5
1,2,4-TMB	<0.5	20.0	19.3	97	20.5	103	6

Test: EPA 8010

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
EDC	<0.2	20.0	18.8	94	20.1	101	7

Test: EPA 504

Compound	Sample Result	Amount Added	Blank Spike	BS %	BS Dup	BSD %	RPD
EDB	<0.01	0.10	0.091	91	0.088	88	3

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: Souder, Miller, & Assoc.

Address: 250 Seventeenth St, Ste B
Las Cruces, NM 88005

Phone #: 505-647-0799

Fax #: 505-647-0680

Project Name: Halliburton

Project #: 3559

Project Manager: KET

Sampler: LNK

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	HEAL No.
10-8-97	1828	H_2O	MW-1	4/40mL	X		9710036-1
↓	1716	↓	MW-10	↓	X		-2
	1600		MW-12		X		-3
	1635		MW-14		X		-4
↓	1455	↓	MW-18	↓	X		-5

ANALYSIS REQUEST

BTEX + MTBE (~~602/8020~~) 8021	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	TPH (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC (Method 8010)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8080 Pesticides / PCB's	8260 (VOA)	8270 (Semi-VOA)	TMB's 8021		Air Bubbles or Headspace (Y or N)
X					X	X								X		N
X					X	X								X		N
X					X	X								X		N
X					X	X								X		N
X					X	X								X		N

Date: 10-9-97 Time: 1815 Relinquished By: (Signature) Lawrence N Kemp

Received By: (Signature) @ 1710

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks: Resupply Time Again ☺
2 cases of 40mL VOA, $HgCl_2$ preserved
and more medium & small coolers.
Thanx

Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

Appendix 7 - Health and Safety Plan

SOUDER, MILLER & ASSOCIATES
SITE-SPECIFIC HEALTH & SAFETY PLAN
29 CFR 1910.120 (b)(2)(4)

1.0 INTRODUCTION

This document is the site-specific health and safety plan for Souder, Miller & Associates (SMA) with specific reference to the Halliburton Energy Services underground storage tank (UST) release site, Artesia, New Mexico. This document cannot list all hazardous activities or materials that may be encountered at the work sites, however it does provide a framework for operating under generally accepted health and safety methods.

2.0 OBJECTIVES

It is the intention of this plan to itemize the minimum health and safety requirements for SMA personnel, for subcontractors under direct supervision by SMA, and for site visitors. This plan is devised with due consideration of regulations and performance requirements of various state agencies regarding the health and safety of the surrounding population. It is also the purpose of this plan to reduce or eliminate the potential for injury.

2.1 Work Tasks and Objectives — 29 CFR 1910.120 (b)(3)(ii)

SMA will be conducting investigative and/or remedial activities related to a release of hydrocarbons from a UST system.

2.2 Effectiveness — 29 CFR 1910.120 (b)(2)(4)(iv)

Inspections shall be conducted by the SMA site health and safety supervisor, or his/her representative, to determine the effectiveness of the site health and safety plan. Any deficiencies in the effectiveness of the site health and safety plan shall be corrected by SMA.

2.3 Location of Health and Safety Plan — 29 CFR 1910.120 (b)(2)(4)(i)

The site health and safety plan will be kept on site accessible to personnel in the SMA vehicle at all times, unless a specific centralized location is designated by the employees, contractors, and subcontractors working on site.

2.4 Pre-Entry Briefing — 29 CFR 1910.120 (b)(2)(4)(iii)

A pre-entry health and safety briefing will be conducted for all site personnel prior to initiating site activity, and at such other times as necessary to ensure that SMA employees, contractors, and subcontractors are apprised of the site health and safety plan.

The information contained in this site health and safety plan is compiled from data obtained from site characterization and analysis work.

3.0 PROJECT ORGANIZATION

SMA Project Manager:	Mr. Karl E. Tonander :	505-647-0799

4.0 AGENCY COORDINATION

NMED Program Manager:	Mr. Steve Huddleston	505-827-0173

5.0 SITE DESCRIPTION — 29 CFR 1910.120 (c)(4)

SITE NAME: Halliburton Energy Services

LOCATION: Artesia

CURRENT ON-SITE ACTIVITIES: Oil Field Support Servic

TOPOGRAPHY: Flat

SURROUNDING POPULATION: Rural

EXPECTED WEATHER CONDITIONS: Hot & Dry

ACCESSIBILITY OF SITE: Highway adjacent to site

6.0 SITE WORK PLAN

6.1 Description of Job Tasks — 29 CFR 1910.120 (c)(4)(ii)

Quarterly sampling of hydrocarbon contaminated groundwater

6.2 Site Cleanup — 29 CFR 1910.120 (b)(3)(i)

The site will be cleared of hazards and construction debris as possible.

7.0 SITE CONTROL

Site control will consist of roping off and flagging the work area to prevent pedestrians and non-essential personnel from getting inside of the work area. The size of the work area will be determined by site specific parameters but will encompass an area of no less than 20 feet radially from the drilling rig.

7.1 Pre-Emergency Planning — 29 CFR 1910.120 (l)(2)(i)

All on-site personnel and visitors will be required to attend a safety meeting discussing elements of this site-specific health and safety plan. The plan will be discussed with all personnel involved with site work prior to work initiation. Site characterization, expected hazards, and emergency response actions will be covered in the pre-emergency meeting. Additional safety meetings will be held when conditions such as weather, scope of work, or unanticipated hazards change substantially.

Monitoring for possible exposure to hazardous substances or health and safety hazards will be performed by the site health and safety officer during the execution of work tasks.

All site personnel must be aware of anticipated potential hazards and actively take steps to avoid or reduce the risk of such potential hazards. The site health and safety officer must be informed if unanticipated health and safety hazards are observed.

8.0 SITE CHARACTERIZATION — 29 CFR 1910.120 (c)

8.1 Preliminary Evaluation — 29 CFR 1910.120 (c)(2)

A preliminary evaluation of site characteristics has been performed prior to site entry by the project manager.

EMPLOYEE PROTECTION Level D personal protective equipment (PPE), including steel-toed boots, gloves, eye

protection, ear protection, and hard hats must be worn by all personnel within the work area.

ENGINEERING CONTROLS — Personnel should, whenever possible, work on the upwind side of excavation or drilling areas. Should air quality monitoring indicate elevated levels of hazardous vapors, the work area will be evacuated. An evaluation of increased level of protection (e.g., respiratory protection) will be performed prior to work area re-entry.

8.2 Anticipated Safety and Health Hazards **29 CFR 1910.120 (c)(4)(v)**

SAFETY HAZARDS: Traffic, Noise, Heavy equipment operation, heat or cold stress, explosion/fire hazard from gasoline contaminated materials

HEALTH HAZARDS: Soil and/or groundwater contaminated with petroleum hydrocarbons, volatile organic vapors, possible free phase petroleum hydrocarbons.

8.3 Hazard Identification **29 CFR 1910.120 (c)(3)**

Chemical Hazard	Pathways for Exposure Risk Identification 29 CFR 1910.120 (c)(4)(vi) 29 CFR 1910.120 (c)(7)			Exposure Limits
Petroleum HC	Skin Contact, Eye Irritation	Inhalation	Ingestion	Cal/ OSHA PEL
Engineering Controls for Exposure Minimization	Wear protective gloves and clothing while handling soils and water Petroleum HC is an eye and throat irritant at levels around the PEL	Stay upwind whenever possible while working with or near excavation equipment. If engineering control is insufficient to minimize risk of inhalation, respirators will be worn.	No eating, drinking, or application of cosmetics in the work area. Decontaminate prior to leaving work area. Wash hands prior to eating, drinking or the application of cosmetics.	300 ppm
Effects of Contaminant	Petroleum HC is an eye and throat irritant at levels around the Permissible Exposure Limit (PEL), and causes narcotic effects (with symptoms including headache, nausea, dizziness, and blurred vision) at higher levels. Long term exposure can affect liver and kidney function. Some studies indicate a potential for petroleum HC to be an animal carcinogen, but this has not been fully established. Because petroleum HC is a mixture of varying proportions of dozens of hydrocarbons, a mean odor threshold has not been determined.			

Physical Hazard	Engineering Controls to Minimize Risks
Noise	Wear earplugs when in noisy areas that interfere with normal conversation.
Traffic	Inspect and maintain traffic safety signs to keep automobile traffic away from work area.
Heat or Cold Stress	Monitor individuals for signs of stress if air temperature exceeds 85°F, or drops below 40°F. Provide frequent breaks to cool down or warm up. Have fluids available.
Heavy Equipment Operation	Be visible to operator when approaching heavy equipment. Do not operate equipment and walk away.
Lifting/Transporting Drums	Follow Safe Work Practices and SMA guidelines on handling drums.

8.4 Safety and Health Risk/Hazard Analysis — 29 CFR 1910.120 (b)(2)(4)(ii)(a)

Work will be performed outdoors. Engineering controls, such as working upwind as much as is practicable, will help minimize risk to exposure. Should PID readings exceed normal background levels anywhere in the work area, the work area will be evacuated, and the risks re-evaluated.

IDLH Concentrations — 29 CFR 1910.120 (c)(7)(ii)

The work area will be evacuated before personnel exposure to IDLH concentrations of contaminants.

Explosion Sensitivity and Flammability Ranges — 29 CFR 1910.120 (c)(7)(iv)

If levels of contaminants reach explosive levels at the borehole location, work will cease and the borehole will be abandoned as described in work tasks. The SMA on-site representative will monitor for potentially explosive conditions.

Oxygen deficiency — 29 CFR 1910.120 (c)(7)(v)

Not applicable

9.0 DECONTAMINATION PROCEDURES — 29 CFR 1910.120 (k)

All downhole equipment will be washed in an alconox solution, rinsed with an adequate volume of tap water to prevent cross contamination between boreholes. Decontamination water will be disposed of at the end of the day to the city sewer or allowed to evaporate, as levels of contaminants are anticipated to be below New Mexico Water Quality Control Commission (NMWQCC) standards for typical gasoline constituents.

All employees leaving the work area shall remove and discard disposable gloves and earplugs, wash personal protective equipment (such as rinsing off boots, cleaning eye protection, etc.) as necessary, and wash hands prior to leaving the work area.

Decontamination shall be performed in an area that will minimize the employee exposure. All equipment used for decontamination shall also be decontaminated or disposed of properly.

10.0 EMERGENCY RESPONSE PLAN — 29 CFR 1910.120 (l)

10.1 Response Activities — 29 CFR 1910.120 (c)(4)(ii)

Determine the nature of the emergency (release of hazardous substances, injury or unconsciousness from hazardous substance, injury from physical hazard, etc.)

FIRST AID KIT AND FIRE EXTINGUISHER:
An emergency First Aid Kit and the Fire Extinguisher are located in the SMA vehicle.

MINOR INJURY: If the injury or illness is minor, full decontamination may be completed and first aid administered prior to transport. If the patient's condition is serious, medical assistance should be summoned immediately.

SEVERE INJURY: If personal injury has occurred resulting from hazardous substance exposure, call for emergency medical attention. Do not enter work area if risk of injury from hazardous substance exposure exists.

If personal injury has occurred, call for emergency medical attention.

TELEPHONE: A mobile telephone is connected to the lighter inside the SMA vehicle for easy access to a telephone.

VEHICLE ACCIDENT: If no personal injury, notify police and treat as traffic mishap. Record name of person(s) involved, telephone number(s), license number(s), insurance company name(s). Photograph vehicle damage, skid marks, property damage, etc.

FIRE OR EXPLOSION: A fire extinguisher is available in the SMA vehicle. In the event a fire cannot be extinguished, or the fighting of fire poses a safety and/or health risk, call the local fire department immediately.

NOTIFICATION OF SITE PERSONNEL:
Three long beeps on support vehicle horn. Site personnel meet at a designated rally point upwind of incident outside of work area. Alert fire department.

11.0 TRAINING AND MEDICAL SURVEILLANCE

11.1 Training — 29 CFR 1910.120 (b)(2)(4)(ii)(b)

All on site personnel have been trained as specified in SMA's health and safety program.

11.2 Medical Surveillance — 29 CFR 1910.120 (f)

All site personnel certify that they are under a medical surveillance program as described in SMA's health and safety program.

12.0 TRAFFIC SAFETY PLAN

The traffic safety plan is included as Attachment A of this site health and safety plan.

13.0 RECORD KEEPING

A daily log of site activities will be kept by the on-site SMA representative during work progression. All activities will be noted.

EMERGENCY TELEPHONE NUMBERS

AGENCY	TELEPHONE NUMBER
Emergency Fire and Rescue Police or Sheriff Highway Patrol Ambulance, Emergency medical or Paramedics.	911
Poison Control	1-800-432-6866
EPA Emergency Response Team	908-321-6660
National Response Center	800-424-8802
Center for Disease Control	404-488-4100
Chemtrec	800-424-9555
NOTIFICATION OF SMA	800-460-5366

Call SMA **800-460-5366** after notification of emergency assistance. Inform office of the name of injured party or the nature of the incident. If injured worker is a contractor or subcontractor, instruct SMA personnel to inform contractor or subcontractor of the incident.

Form 1216
Site Name Halliburton Services
USTB Facility # 2089002
Date 11 / 5 / 97

Appendix 8 - Summary of Well Bench Tests

Summary of Well Testing
Halliburton Services
Artesia, NM

MW-1			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	ND	ND	0.02
Oct-95	ND	ns	ns
Dec-95	2.4	ns	ns
Jan-96	6.2	ns	ns
Feb-96	4.6	ns	ns
Mar-96	4.6	ns	ns
Jun-96	8.4	ns	ns
Oct-96	ND	ns	ns
Jan-97	ND	ND	ND
Apr-97	ND	0.60	ND
9-Jul-97	6.4	0.40	ND
15-Jul-97	0.6	ns	ns
23-Jul-97	ND	ns	ns
8-Oct-97	ND	ND	ND

MW-2			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	0.8	ND	0.08
Jul-92	0.6	1.30	ND
Jan-93	ND	ns	ns
Jul-95	ND	0.10	0.01
Oct-95	ND	ns	ns
Dec-95	0.2	ns	ns
Jan-96	1.4	ns	ns
Feb-96	0.6	ns	ns
Mar-96	2.8	ns	ns
Jun-96	8.2	ns	ns
Oct-96	ND	ns	ns
Jan-97	5.6	3.00	ND
Apr-97	8.4	ns	ns
Jul-97	8.4	ns	ns
15-Jul-97	1.6	ns	ns
23-Jul-97	0.6	ns	ns
9-Oct-97	ND	ns	ns

MW-3			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	1.6	ns	ns
Jul-97	1.4	ns	ns
15-Jul-97	ND	ns	ns
9-Oct-97	ND	ns	ns

MW-4			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	ND	ND	ND

MW-6			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	6.4	ND	0.22
Oct-92	6.4	ns	ns
Apr-93	3.0	ns	ns
Jan-94	1.0	ns	ns
Apr-94	2.0	ns	ns
Jul-94	2.0	ns	ns
Jul-95	1.2	0.40	0.08
Oct-95	ND	ns	ns
Dec-95	6.4	ns	ns
Jan-96	7.0	ns	ns
Feb-96	5.8	ns	ns
Mar-96	7.4	ns	ns
Jun-96	7.8	ns	ns
Oct-96	6.4	ns	ns
Jan-97	2.6	ND	ND
Apr-97	2.6	ns	ns
Jul-97	7.4	ns	ns
15-Jul-97	4.2	ns	ns
8-Oct-97	0.6	ns	ns

MW-7			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jan-92	0.8	ND	0.08
Feb-92	2.4	ND	ND
Jul-92	0.6	1.30	ND
Jan-93	0.6	ns	ns
Jan-97	3.2	3.00	ND
Apr-97	1.8	ns	ns
Jul-97	2.4	ns	ns
15-Jul-97	1.2	ns	ns
8-Oct-97	ND	ns	ns

Notes:
ND - non-detect
ns - not sampled

Summary of Well Testing
Halliburton Services
Artesia, NM

MW-8			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	2.0	ND	ND
Oct-92	2.0	ns	ns
Apr-93	ND	ns	ns
Jan-94	ND	ns	ns
Jul-94	ND	ns	ns
Jul-95	ND	ND	0.01
Oct-95	ND	ns	ns
Dec-95	1.2	ns	ns
Jan-96	6.0	ns	ns
Feb-96	6.8	ns	ns
Mar-96	6.6	ns	ns
Jun-96	8.0	ns	ns
Oct-96	ND	ns	ns
Jan-97	1.4	ND	ND
Apr-97	3.2	ns	ns
Jul-97	4.8	ns	ns
15-Jul-97	0.8	ns	ns
9-Oct-97	ND	ns	ns

MW-10			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	5.0	ND	0.62
Jan-94	0.4	ns	ns
Apr-94	<0.2	ns	ns
Jul-94	ND	ns	ns
Jul-95	ND	ND	ND
Oct-95	ND	ns	ns
Dec-95	0.4	ns	ns
Jan-96	5.2	ns	ns
Feb-96	1.0	ns	ns
Mar-96	1.4	ns	ns
Jun-96	3.4	ns	ns
Oct-96	ND	ns	ns
Jan-97	0.6	ND	ND
Apr-97	7.6	0.40	ND
Jul-97	8.4	0.40	0.52
15-Jul-97	4.2	ns	ns
8-Oct-97	1.4	0.10	0.09

MW-12			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	2.4	ND	ND
Jul-92	1.2	3.30	ND
Oct-92	ND	ns	ns
Jan-93	ND	ns	ns
Apr-93	0.2	ns	ns
Jan-94	ND	ns	ns
Apr-94	ND	ns	ns
Jul-94	ND	ns	ns
Jul-95	ND	0.60	0.08
Oct-95	ND	ns	ns
Dec-95	ND	ns	ns
Jan-96	0.8	ns	ns
Feb-96	0.6	ns	ns
Mar-96	0.8	ns	ns
Jun-96	1.0	ns	ns
Oct-96	1.2	ns	ns
Jan-97	ND	8.00	ND
Apr-97	ND	0.80	ND
Jul-97	1.2	1.10	ND
15-Jul-97	0.2	ns	ns
8-Oct-97	0.4	0.90	ND

MW-13			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Feb-92	6.0	10.00	ND
Oct-92	6.0	ns	ns
Apr-93	2.2	ns	ns
Jan-94	ND	ns	ns
Apr-94	1.0	ns	ns
Jul-94	ND	ns	ns
Jul-95	0.4	0.10	0.01
Oct-95	0.3	ns	ns
Dec-95	3.0	ns	ns
Jan-96	3.2	ns	ns
Feb-96	6.8	ns	ns
Mar-96	7.2	ns	ns
Jun-96	3.8	ns	ns
Oct-96	5.8	ns	ns
Jan-97	6.4	2.00	0.08
Apr-97	9.0	ns	ns
8-Jul-97	8.2	ns	ns
15-Jul-97	7.6	ns	ns
23-Jul-97	5.8	ns	ns
9-Oct-97	3.2	ns	ns

Notes:
ND - non-detect
ns - not sampled

Summary of Well Testing
Halliburton Services
Artesia, NM

MW-14			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-92	2.0	2.30	ND
Jan-93	ND	ns	ns
Jul-95	ND	ND	ND
Jul-95	Product	ns	ns
Dec-95	Product	ns	ns
Jan-96	Product	ns	ns
Feb-96	Product	ns	ns
Mar-96	0.6	ns	ns
Jun-96	0.8	ns	ns
Oct-96	ND	ns	ns
Jan-97	0.8	11.00	ND
Apr-97	1.2	1.10	ND
Jul-97	1.8	ND	ND
15-Jul-97	ND	ns	ns
8-Oct-97	ND	ND	ND

MW-15			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-92	ND	0.70	ND
Jan-93	ND	ns	ns
Jul-95	0.4	1.40	0.02
Oct-95	ND	ns	ns
Dec-95	3.0	ns	ns
Jan-96	3.6	ns	ns
Feb-96	6.6	ns	ns
Mar-96	ND	ns	ns
Jun-96	ND	ns	ns
Oct-96	0.8	ns	ns
Jan-97	7.4	3.00	ND
Apr-97	8.4	ns	ns
Jul-97	7.8	ns	ns
15-Jul-97	3.2	ns	ns
9-Oct-97	ND	ns	ns

MW-16			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-92	2.0	>1	2.00
Jan-94	0.8	ns	ns
Apr-94	0.6	ns	ns
Jul-94	1.0	ns	ns
Jul-95	0.8	1.40	0.08
Oct-95	0.6	ns	ns
Dec-95	0.6	ns	ns
Jan-96	0.8	ns	ns
Feb-96	ND	ns	ns
Mar-96	0.4	ns	ns
Jun-96	ND	ns	ns
Oct-96	0.8	ns	ns
Jan-97	4.4	8.00	0.04
Apr-97	0.8	ns	ns
Jul-97	0.2	ns	ns
15-Jul-97	0.6	ns	ns
9-Oct-97	0.4	ns	ns

MW-17			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	1.6	1.60	0.02
Oct-95	4.2	ns	ns
Dec-95	0.8	ns	ns
Jan-96	1.0	ns	ns
Feb-96	0.6	ns	ns
Mar-96	4.8	ns	ns
Jun-96	1.2	ns	ns
Oct-96	2.8	ns	ns
Jan-97	4.8	ns	ns
Apr-97	1.8	ns	ns
Jul-97	1.4	ns	ns
15-Jul-97	1.2	ns	ns
9-Oct-97	1.2	ns	ns

Notes:
ND - non-detect
ns - not sampled

Summary of Well Testing
Halliburton Services
Artesia, NM

MW-18			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	1.2	1.80	0.03
Oct-95	5.2	ns	ns
Dec-95	1.6	ns	ns
Jan-96	2.4	ns	ns
Feb-96	2.0	ns	ns
Mar-96	3.4	ns	ns
Jun-96	1.2	ns	ns
Oct-96	1.4	ns	ns
Jan-97	1.2	ns	ns
Apr-97	2.2	0.30	0.06
Jul-97	1.0	0.60	0.07
15-Jul-97	0.6	ns	ns
9-Oct-97	1.0	1.30	0.12

MW-19			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	1.2	1.20	0.01
Oct-95	1.8	ns	ns
Dec-95	2.6	ns	ns
Jan-96	2.0	ns	ns
Feb-96	2.0	ns	ns
Mar-96	0.4	ns	ns
Jun-96	1.2	ns	ns
Oct-96	0.4	ns	ns
Jan-97	0.4	4.00	ND
Apr-97	0.2	ns	ns
Jul-97	0.2	ns	ns
15-Jul-97	0.2	ns	ns
9-Oct-97	0.2	ns	ns

MW-21			
Date	DO (ppm)	P (mg/L)	N (mg/L)
Jul-95	2.2	1.50	0.02
Oct-95	2.2	ns	ns
Dec-95	1.4	ns	ns
Jan-96	1.0	ns	ns
Feb-96	1.0	ns	ns
Mar-96	5.2	ns	ns
Jun-96	1.2	ns	ns
Oct-96	5.4	ns	ns
Jan-97	4.4	2.00	ND
Apr-97	4.4	ns	ns
Jul-97	7.4	ns	ns
15-Jul-97	1.8	ns	ns
9-Oct-97	1.4	ns	ns

Notes:
ND - non-detect
ns - not sampled

HALLIBURTON

HALLIBURTON ENERGY SERVICES

Post Office Drawer 1431 / Duncan, Oklahoma 73536-0108 / Tel: 405-251-4358 / Fax: 405-251-3969

May 19, 1994

State of New Mexico
Energy, Minerals & Natural Resources Department
ATTN: Kathy Brown
P. O. Box 2088
State Land Office Building
Santa Fe, NM 87504

RE: POTW Effluent Testing for Hazardous Waste Applicability

Dear Ms. Brown:

I am forwarding a copy of the analytical results for our effluent which is discharged to the Artesia City POTW, as required in our discharge permit.

There were no items which would force our effluent to fall under the RCRA Subtitle C regulations and the results met with the permitting requirements of the City of Artesia. The testing will be conducted on an annual basis.

If you have any questions or need additional information, please don't hesitate to contact me at the letterhead number.

Sincerely,

Matt D. Ratliff
Environment Engineer

Enclosure

c: Bruce Hancock/Hobbs
Sherman Pierce
Ron Bechtel

MDR19.94/eab

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2311 South 1st Street
City, State: Artesia, NM 88210

Date: 5/11/94
Lab # H1629

Project Name: Artesia Washbay Effluent
Project Location: Artesia, NM
Sampled by: RH
Type of Sample: Water
Sample Condition: VOA,HDPE,GIST

Date: 4/22/94

Sample ID: HES Artesia Washrack Separator

VOLATILES

PARAMETER	RESULT	UNITS
Acetone	<500	ug/L
Benzene	<25	ug/L
Bromodichloromethane	<25	ug/L
Bromoform	<25	ug/L
Bromomethane	<50	ug/L
2-Butanone	<25	ug/L
Carbon Tetrachloride	<25	ug/L
Chlorobenzene	<25	ug/L
Chloroethane	<50	ug/L
Chloroform	<25	ug/L
Chloromethane	<50	ug/L
1,1-Dichloroethane	<25	ug/L
1,2-Dichloroethane	<25	ug/L
1,1-Dichloroethene	<25	ug/L
trans-1,2-Dichloroethene	<25	ug/L
1,2-Dichloropropane	<25	ug/L
cis-1,3-Dichloropropene	<25	ug/L
trans-1,3-Dichloropropene	<25	ug/L
Vinyl Chloride	<25	ug/L
Methylene Chloride	<25	ug/L
Carbon Disulfide	<50	ug/L
1,1,1-Trichloroethane	<25	ug/L
Trichloroethene	<25	ug/L
Dibromochloromethane	<25	ug/L
1,1,2-Trichloroethane	<25	ug/L
4-Methyl-2-Pentanone	<25	ug/L
2-Hexanone	<25	ug/L
Tetrachloroethene	<25	ug/L
1,1,2,2-Tetrachloroethane	<25	ug/L
Toluene	<25	ug/L
Ethylbenzene	<25	ug/L
Styrene	<25	ug/L
o,m,p-Xylene	<25	ug/L

Method: EPA 624

Michael R. Fowler

Date 5-11-94

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

HEAVY METALS ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2311 South 1st Street
City, State: Artesia, NM 88210

Date: 5/11/94
Lab#: #1623

Project Name: Artesia Washbay Effluent
Project Location: Artesia, NM
Sampled By: BH
Type of Sample: Water

Date: 4/22/94
Sample Condition: VOA, HDPE, GIST

Sample ID: NES Artesia Washrack Separator

PARAMETER	RESULT	UNITS
Arsenic	0.005	mg/L
Barium	0.16	mg/L
Cadmium	<0.002	mg/L
Chromium	<0.02	mg/L
Lead	0.09	mg/L
Mercury	<0.0002	mg/L
Selenium	0.008	mg/L
Silver	0.090	mg/L

METHODS: EPA 3005/7471

Michael R. Fowler

Date 5-11-94

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Halliburton Energy Services
Address: 2311 South 1st Street
City, State: Artesia, NM 88210

Date: 5/11/94
Lab#: H1629

Project Name: Artesia Washbay Effluent
Project Location: Artesia, NM
Sampled by: BH
Analyzed by: NH
Type of Samples: Water

Date: 4/22/94 Time: 9:30
Date: 4/25/94 Time: 11:45
Sample Condition: VOA, HDPE, GIST Units: mg/L

Samp #	Field Code	TRPHC
1	HES Artesia Washrack Separator	5.8
	QC Recovery	406.7
	QC Spike	405.9
	Accuracy	100.2%
	Air Blank	***

Methods - INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 418.1, 3540 OR 3510

Michael R. Fowler

Date 5-11-94

CRI

CONTROLLED RECOVERY INC.

P.O. BOX 369, HOBBS, NM 88241 (505) 393-1079

RECEIVED
MAY 17 1993
OIL CONSERVATION DIV
SANTA FE

May 14, 1993

Ms. Kathy Brown
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Dear Ms. Brown:

Enclosed please find analytical data from sump at the Halliburton yard in Artesia, New Mexico.

We are requesting approval to accept this material at our Halfway Disposal facility.

Sincerely,

Becky Johncox

Becky Johncox

/baj

Enclosures

Your request is approved this 17th day of May, 1993.

Signature: Kathy M. Brown
New Mexico Oil Conservation Division

CARDINAL LABORATORIES
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Halliburton Services
Address: P.O. Box 2568
City, State: Hobbs, NM

Date: 01/04/93
Lab#: H1101

Project Name: Wash Rack Grit
Project Location: Artesia, NM
Sampled by: BH Date: 12/17/92 Time: 0800
Analyzed by: MG/GD Date: 12/18/92 Time: 0800
Type of Samples: Sample Condition: GIST Units: mg/kg, mg/l

Samp #	Field Code	TRPHC	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	Wash Rack Grit1	3517.6	0.014	0.078	0.030	<0.001	0.049	0.040	<0.001
	QC Recovery	314.9	1.040	0.984	0.949	0.910	0.877	0.917	0.809
	QC Spike	336.2	0.926	0.944	0.930	0.941	0.924	0.944	0.731
	Accuracy	93.7%	112.3%	104.2%	102.0%	96.7%	94.9%	97.1%	110.7%
	Air Blank	***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC; INFRARED SPECTROSCOPY
- EPA SW-846; EPA METHODS 8020, 418.1, 3540 OR 3510

Michael R. Fowler

Date 1/4/93

Michael R. Fowler

CARDINAL LABORATORIES
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Halliburton Services
Address: P.O. Box 2568
City, State: Hobbs, NM

Date: 01/04/93
Lab # H1101-1

Project Name: Wash Rack Grit
Project Location: Artesia, NM
Sampled by: BH
Date: 12/17/92
Type of Sample: Soil
Sample Condition: GIST
Sample ID: Wash Rack

TCLP ORGANAICS

PARAMETER	RESULT	UNITS
Benzene	<0.01	mg/L
Carbon Tetrachloride	<0.01	mg/L
Chlordane	<0.01	mg/L
Chlorobenzene	<0.01	mg/L
Chloroform	<0.01	mg/L
Cresol (O,M,P)	<0.01	mg/L
2,4-D	<0.01	mg/L
1,4-Dichlorobenzene	<0.01	mg/L
1,2-Dichloroethane	<0.01	mg/L
1,1-Dichloroethylene	<0.01	mg/L
2,4-Dinitrotoluene	<0.01	mg/L
Endrin	<0.005	mg/L
Heptachlor	<0.004	mg/L
Hexachlorobenzene	<0.01	mg/L
Hexachlorobutadiene	<0.01	mg/L
Hexachloroethane	<0.01	mg/L
Lindane	<0.01	mg/L
Methoxyclor	<0.01	mg/L
Methy Ethyl Ketone	<0.01	mg/L
Nitrobenzene	<0.01	mg/L
Pentachlorophenol	<0.01	mg/L
Pyridine	<0.01	mg/L
Tetrachloroethylene	<0.01	mg/L
Toxaphene	<0.01	mg/L
Trichloroethylene	<0.01	mg/L
2,4,5-Trichlorophenol	<0.01	mg/L
2,4,6-Trichlorophenol	<0.01	mg/L
2,4,5-TP(Silvex)	<0.01	mg/L
Vinyl Chloride	<0.01	mg/L

ARDINAL LABORATORIES
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Halliburton Services
Address: P.O. Box 2568
City, State: Hobbs, NM

Date: 01/04/93
Lab#: H1101-1

Project Name: Wash Rack Grit
Project Location: Artesia, NM
Sampled by: BH
Type of Sample: Soil

Date: 12/17/92
Sample Condition: GIST

Sample ID: Wash Rack

TCLP INORGANICS (Leachate)

PARAMETER	RESULT	UNITS
Arsenic	0.04	mg/L
Barium	1.28	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.01	mg/L
Copper	<0.01	mg/L
Lead	<0.01	mg/L
Mercury	0.008	mg/L
Nickel	0.08	mg/L
Selenium	<0.01	mg/L
Silver	<0.01	mg/L
Zinc	1.09	mg/L

CARDINAL LABORATORIES
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

TCLP ANALYSIS REPORT

Company: Halliburton Services
Address: P.O. Box 2568
City, State: Hobbs, NM

Date: 01/04/93
Lab#: H1101-1

Project Name: Wash Rack Grit
Project Location: Artesia, NM
Sampled by: BH
Type of Sample: Soil

Date: 12/17/92
Sample Condition: GIST

PARAMETER	RESULT	UNITS
Specfic Gravity	1.00	g/cc
Oil & Grease,	60	mg/kg
Color	Black	
Physical State	Solids	
Odor	Rancid	
Ignitability (Pensky-Martens Closed Cup)	>200	F
Corrosivity, (pH)	8.75	
Reactivity-S	No Reaction (<0.01)	mg/kg
Reactivity-CN	No Reaction (<0.01)	mg/kg
Total Solids (Dried Weight), %	76.50	

APPEARANCE AFTER TWO TO FOUR HOURS

Layers	1	
Solids	100	%
Oil	<0.1	%
Liquid	<0.1	%

METHODS: TCLP ORGANICS - EPA 8015/8020/8080/8150
METHODS: TCLP INORGANICS (Leachate) - EPA 1311/6010/7471
METHODS: HWC - EPA SW 846

Michael R. Fowler

Date 1/4/93

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab SwL Contract No.

OCD Sample No. 920316 1445

Collection Date	Collection Time	Collected by —Person/Agency
92 03 16	1445	ROGER ANDERSON/OCD

SITE INFORMATION

Sample location HALLIBURTON - ARTESIA

Collection Site Description WASTEBAY SUMP

Township, Range, Section, Tract:

SEND FINAL REPORT TO ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
- ☒ Dipped ☐ Tap

Water level

Discharge

Sample type GRAB

pH(00400)

Conductivity (Uncorrected) μmho

Water Temp. (00010)

Conductivity at 25° C μmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

- ☒ **NF:** Whole sample (Non-filtered)
- ☐ **F:** Filtered in field with 0.45 μ membrane filter
- ☐ **PF:** Pre-filtered w/45 μ membrane filter

- ☐ **NA:** No acid added
- ☐ **A:** HCL
- ☐ **A:** 2ml H_2SO_4/L added
- ☐ **A:** 5ml conc. HNO_3 added
- ☐ **A:** 4ml fuming HNO_3 added
- ☒ **A:** HgCl

FIELD COMMENTS:

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METH
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8240

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 5 (g/mL) ml
Level: (low/med) LOW
Dilution Factor: 1.0

Lab Number: 9203255-2
Client: Oil Conservation
Sample ID: 9203161445/Hall
Lab File ID: >AF804
Date Received: 3/25/92
Date Analyzed: 4/01/92

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
107-02-8	Acrolein	50.	U
107-13-1	Acrylonitrile	50.	U
75-71-8	Dichlorodifluoromethane	10.	U
74-88-4	Iodomethane	10.	U
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-69-4	Trichlorofluoromethane	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene_Chloride	5.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
156-60-5	trans-1,2-Dichloroethene	5.	U
67-66-3	Chloroform	5.	U
107-02-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	100.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	50.	U
74-95-3	Dibromomethane	5.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8240

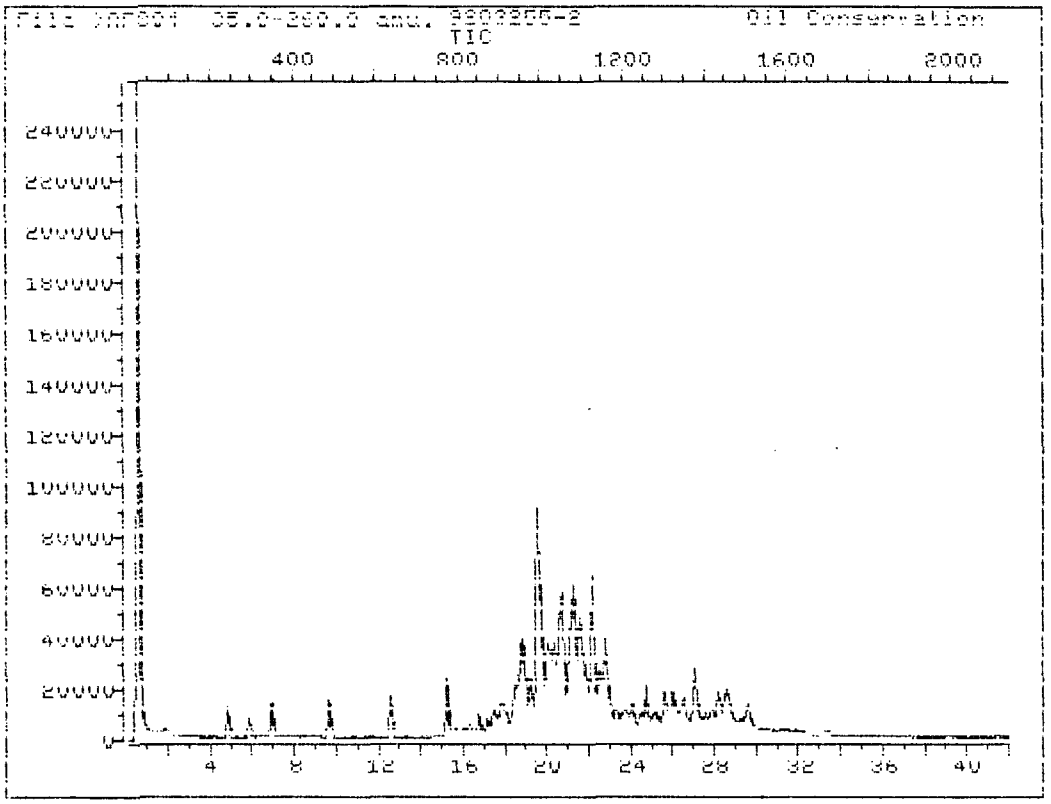
Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 5 (g/mL) ml
Level: (low/med) LOW
Dilution Factor: 1.0

Lab Number: 9203255-2
Client: Oil Conservation
Sample ID: 9203161445/Hall
Lab File ID: >AF804
Date Received: 3/25/92
Date Analyzed: 4/01/92

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-57-6	1,4-Dichloro-2-Butene	5.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
110-75-8	2-Chloroethylvinyl_Ether	10.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-pentanone	50.	U
591-78-6	2-Hexanone	50.	U
127-18-4	Tetrachloroethene	5.	U
96-18-4	1,2,3-Trichloropropane	5.	U
97-63-2	Ethyl Methacrylate	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene	5.	U
133-02-7	Xylene (total)	5.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

TOTAL ION CHROMATOGRAM



Data File: >AF804::D3 Quant Output File: ^AF804::QT
Name: 9203255-2
Misc: Oil Conservation

Id File: ID_VOA::SC
Title: SML VOA Standards for 5 Point Calibration Curve MAR '92
Last Calibration: 920303 09:49

Operator ID: RET
Quant Time: 920401 23:43
Injected at: 920401 23:00