



**NEW MEXICO
ENVIRONMENT DEPARTMENT**

Surface Water Quality Bureau

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**THOMAS SKIBITSKI
Acting Director
Resource Protection Division**

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 15, 2013

Ms. Leslie Ann Allen, Senior Vice President
Environmental and Regulatory Affairs
Western Refining Southwest, Inc.
123 W. Mills Ave., Suite 200
El Paso, TX 79901

Re: Industrial Storm Water, SIC 2911, NPDES Compliance Evaluation Inspection, Western Refining Southwest, Inc., NMR05GD51, May 8, 2013

Dear Ms. Allen:

Enclosed please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas, for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Problems noted during this inspection are discussed in the Further Explanations section of the inspection report. You are encouraged to review the inspection report, and required to correct any problems noted during the inspection and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify, in writing, both USEPA (Diana McDonald, USEPA (6EN-WM), 1445 Ross Ave., Dallas, Texas 75202) and NMED (at above address) regarding modifications and compliance schedules.

The NPDES Storm Water Multi-Sector General Permit for Industrial Activities (MSGP-2008) was reissued on September 29, 2008. The MSGP, fact sheet and other information on the industrial storm water program can be downloaded at <http://cfpub2.epa.gov/npdes/stormwater/msgp.cfm>.

Thank you for the cooperation and assistance that Ed Riege, Beck Larsen and Cheryl Johnson provided during NMED's visit to your site. If you have any questions, please feel free to contact me at the above address or by telephone at (505) 222-9587.

Sincerely,
/s/ Sarah Holcomb
Sarah Holcomb
Environmental Scientist/Specialist
Surface Water Quality Bureau

Cc: Hannah Branning, USEPA (6EN-AS) via email Darlene Whitten-Hill, USEPA, via email
Rashida Bowlin, USEPA (6EN-AS) via email NMED District I Manager, via email
Carol Peters-Wagon, USEPA (6EN-WM) via email Carl Chavez, EMNRD OCD, via email
Diana McDonald, USEPA (6EN-WM) via email John Kieling, Bureau Chief, NMED HWB, via email
Vic McDaniel, Refinery Manager, via email



NPDES Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	NPDES										yr/mo/day					Inspec. Type	Inspector	Fac Type										
1	N	2	5	3	N	M	R	0	5	G	D	5	1	11	12	1	3	0	5	0	5	17	18	~	19	S	20	2
Remarks																												
S E C T O R C - O I L R E F I N E R Y																												
Inspection Work Days						Facility Evaluation Rating						BI		QA		-----Reserved-----												
67						70						71		72		73		74		75		80						

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) NEAR GALLUP, MCKINLEY COUNTY, NM: FROM ALBUQUERQUE, TAKE I-40 WEST. EXIT I-40 AT THE REFINERY EXIT, NUMBER 39. FOLLOW THE ROAD PAST THE TRUCK STOP TO THE REFINERY.		Entry Time /Date 0935 HOURS / 5-8-2013	Permit Effective Date 9-29-2008
		Exit Time/Date 1650 HOURS / 5-8-2013	Permit Expiration Date 9-29-2013
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) MR. ED RIEGE, ENVIRONMENTAL MANAGER (505) 722-3833 MR. BECK LARSEN, ENVIRONMENTAL ENGINEER (505) 722-3833 MS. CHERYL JOHNSON, ENVIRONMENTAL SPECIALIST (505) 722-3833		Other Facility Data GPS: N. 35° 29' 26.32" W. -108° 26' 25.83"	
Name, Address of Responsible Official/Title/Phone and Fax Number MR. VICTOR "COTTON" MCDANIEL, REFINERY MANAGER (505) 722-3833 ROUTE 3 BOX 7, JAMESTOWN, NM 87347		SIC: 2911	
		Contacted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	N	Flow Measurement	M	Operations & Maintenance	N	CSO/SSO
M	Records/Reports	M	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
M	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	N	Laboratory	M	Storm Water	N	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

1. THE INSPECTORS ARRIVED AT THE WESTERN REFINING FACILITY (FORMERLY THE GIANT CINIZA REFINERY) AT 0935 HOURS ON MAY 8, 2013. THE INSPECTORS CONDUCTED AN ENTRANCE INTERVIEW WITH MR. ED RIEGE, MR. BECK LARSEN AND MS. CHERYL JOHNSON WHERE THEY MADE INTRODUCTIONS, PRESENTED THEIR CREDENTIALS AND EXPLAINED THE PURPOSE OF THE INSPECTION. REVIEW OF RECORDS AND A FACILITY TOUR WERE CONDUCTED. THE INSPECTION CONCLUDED WITH AN EXIT INTERVIEW CONDUCTED AT THE FACILITY WITH THE AFOREMENTIONED PARTIES AND MR. VIC MCDANIEL, REFINERY MANAGER, AND MR. STAN FISHER, DIRECTOR OF OPERATIONS, WHERE THE INSPECTORS PRESENTED THE PRELIMINARY FINDINGS OF THE INSPECTION.
2. PLEASE SEE THE REPORT FOR FURTHER DISCUSSION.

Name(s) and Signature(s) of Inspector(s) Sarah Holcomb /s/ Sarah Holcomb	Agency/Office/Telephone/Fax 505-222-9587	Date 5-15-2013
Signature of Management QA Reviewer Bruce Yurdin /s/ Bruce Yurdin	Agency/Office/Phone and Fax Numbers 505-827-2795	Date 5-15-2013

NPDES Industrial Storm Water Checklist (MSGP)

<u>National Database Information</u>			<u>General</u>		
Inspection Type	CEI		Inspector Name	Holcomb, Yurdin	
NPDES ID Number	NMR05GD51		Telephone	505-222-9587	
Inspection Date	5-8-2013		Entry Time	0935 hours	
Inspector Type <i>(circle one)</i>	EPA	<input type="checkbox"/> State	EPA Oversight	Exit Time	1650 hours
Facility Sector/ SIC/Activity Code	Sector C SIC 2911		Signature	<i>/s/ Sarah Holcomb</i>	

<u>Facility Location Information</u>				
Name/Location/ Mailing Address	Western Refining – Gallup; Exit 39 off of I-40 Mailing address: Route 3 Box 7, Gallup, NM 87301			
GPS Coordinates	Latitude	N 35° 29' 26.32"	Longitude	W 108° 26' 25.83"
Receiving Water(s)	South Fork Puerco River in 20.6.4.98 NMAC			

<u>Contact Information</u>		
	Name(s)	Telephone
Name(s) and Role(s) of All Parties Meeting the Definition of Operator	Western Refining Southwest Inc.	
Facility Contact	Ed Riege, Cheryl Johnson, Beck Larsen	505-722-3833
Authorized Official(s)	Vic McDaniel, Refinery Manager	505-722-3833

<u>Basic Permit Information</u>			<u>Basic SWPPP Information</u>		
Permit Coverage	<input checked="" type="checkbox"/> Y	N	SWPPP Prepared & Available	<input checked="" type="checkbox"/> Y	N
Permit Type	<input checked="" type="checkbox"/> General	Individual	SWPPP Contents Satisfactory	Y	N
Operational Date	1957		SWPPP Implementation Satisfactory	Y	N
NOI/Application Date	1-8-2009		SWPPP Date	Jan 2009	
If applicable, is no exposure certification on file?	Y	N	<i>Intentionally left blank</i>		

NPDES Industrial Storm Water Checklist (MSGP)

SWPPP Review			
General	Notes:		
Was the SWPPP completed prior to NOI submission?	<input checked="" type="checkbox"/>	N	SWPPP was updated as of 3-1-2013.
Copy of the NOI and acknowledgment letter from EPA?	<input checked="" type="checkbox"/>	N	
Copy of the permit language?	<input checked="" type="checkbox"/>	N	
Have copies of inspection reports/all other documentation been retained as part of the SWPPP for 3 years from date permit coverage expires?	<input checked="" type="checkbox"/>	N	
Does the SWPPP contain a signed/certified statement indicating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to precipitation, in accordance with the substantive requirements in 40 CFR 122.26(g)(4)(iii)? Applicable to: <ul style="list-style-type: none"> · Routine facility inspection (4.1.3) · Quarterly visual assessment (4.2.3) · Benchmark monitoring (6.2.1.3). 	Y	N	N/A
Does the SWPPP include copies of relevant parts of other documents (e.g., SPCC) referenced in the SWPPP?	<input checked="" type="checkbox"/>	N	The SPCC is referred to in the SWPPP and was available for review by the inspectors.
Does the SWPPP include documentation to support eligibility under the Endangered Species Act?	<input checked="" type="checkbox"/>	N	A well-reasoned explanation for certification under Criterion E was included in the plan.
Does the SWPPP include documentation to support eligibility under the Historic Preservation Act?	<input checked="" type="checkbox"/>	N	However, there was a small structure on the north end of the facility that may have been a historic feature.
Does the SWPPP include documentation to support eligibility under NEPA (New Source)?	Y	N	N/A
Did all "operators" sign/certify the SWPPP?	<input checked="" type="checkbox"/>	N	Mr. McDaniel signed the updated version of the plan on 2-22-2013. It had previously been signed by the previous manager, Mark Turri.
Is the storm water pollution prevention team identified (name or title)?	<input checked="" type="checkbox"/>	N	Team is identified by title.
Are the storm water pollution prevention team's responsibilities identified?	<input checked="" type="checkbox"/>	N	Responsibilities are identified generally as a team, not specific to title.

NPDES Industrial Storm Water Checklist (MSGP)

Site Description			Notes:
SWPPP provides a description of the facility's industrial activities?	<input checked="" type="checkbox"/> Y	N	
Is there a general location map (e.g., USGS quadrangle map) with enough detail to identify the location of the facility and all receiving waters for storm water discharges?	<input checked="" type="checkbox"/> Y	N	
Is there a site specific site map?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain the size of the property in acres?	Y	<input checked="" type="checkbox"/> N	
Does the site map contain the location and extent of significant structures and impervious surfaces?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain directions of storm water flow (indicated by arrows)?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain locations of all existing structural control measures?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain locations of all receiving waters in the immediate vicinity of the facility, indicating if any of the waters are impaired, and if so, whether the waters have TMDLs established for them?	Y	<input checked="" type="checkbox"/> N	No water quality information was included on the map to indicate whether the receiving waters were impaired or if there was a TMDL in place.
Does the site map contain locations of all storm water conveyances including ditches, pipes and swales?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain locations of all potential pollutants and significant materials identified under Part 5.1.3.2?	Y	<input checked="" type="checkbox"/> N	
Does the site map contain locations where significant spills or leaks identified under Part 5.1.3.3 have occurred?	Y	<input checked="" type="checkbox"/> N	
Does the site map contain locations of all storm water monitoring points?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain locations of storm water inlets and outfalls, with a unique identification (e.g., 001, 002) for each outfall and if substantially identical?	<input checked="" type="checkbox"/> Y	N	
Does the site map contain municipal separate storm sewers and where the facility discharges to them?	Y	N	N/A
Does the site map contain locations and descriptions of all non-storm water discharges?	Y	<input checked="" type="checkbox"/> N	Facility representatives indicated that there were no non-storm water discharges occurring.

NPDES Industrial Storm Water Checklist (MSGP)

Site Description			Notes:
<p>Does the site map contain locations of the following activities where these activities are exposed to precipitation?</p> <ul style="list-style-type: none"> · Fueling stations · Vehicle and equipment maintenance and/or cleaning areas · Loading/unloading areas · Locations used for the treatment, storage or disposal of wastes · Liquid storage tanks · Processing and storage areas · Immediate access roads and rail lines used or travelled by carriers of raw materials, manufactured products, waste materials, or by-products used or created by the facility · Transfer areas for substances in bulk · Machinery 	<input checked="" type="checkbox"/>	N	
Does the site map contain locations and sources of run-on to the site from adjacent property that contains significant quantities of pollutants?	Y	<input checked="" type="checkbox"/>	This analysis has not been conducted. Facility representatives indicate that there is agriculture east of the site but were unsure of the impact.
Does the SWPPP document areas at the facility where industrial materials or activities are exposed to storm water and from which allowable non-storm water discharges are released?	<input checked="" type="checkbox"/>	N	No allowable discharges are occurring according to facility staff.
Does the SWPPP include a list of the industrial activities exposed to storm water (e.g., material storage; equipment fueling, maintenance, and cleaning; cutting steel beams)?	<input checked="" type="checkbox"/>	N	
Does the SWPPP include a list of pollutants and/or pollutant constituents associated with each identified activity?	Y	<input checked="" type="checkbox"/>	
Does the SWPPP include documentation of where spills and leaks occurred for three years prior to the preparation of the SWPPP?	Y	<input checked="" type="checkbox"/>	

NPDES Industrial Storm Water Checklist (MSGP)

Site Description		Notes:	
Does the SWPPP include a non-storm water discharge evaluation in the SWPPP? Does it include: <ul style="list-style-type: none"> · Date · Description of evaluation criteria · List of the outfalls or onsite drainage points directly observed · Different types of non-storm water discharges and source locations · Actions taken such as a list of control measures for elimination. 	<input checked="" type="checkbox"/>	N	
Does salt storage occur at this facility?	Y	<input checked="" type="checkbox"/>	
Does the SWPPP include a summary of storm water sampling data for the previous permit term?	<input checked="" type="checkbox"/>	N	
Controls to Reduce Pollutants		Notes:	
Does the SWPPP include documentation of the location and type of control measures at the facility to comply with the requirements in Part 2?	<input checked="" type="checkbox"/>	N	
Does the SWPPP include documentation that selection and design of control measures were based on a consideration of the practices and procedures in Part 2.1.1?	<input checked="" type="checkbox"/>	N	
Does the SWPPP include measures to minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings?	Y	<input checked="" type="checkbox"/>	
Does the SWPPP include good housekeeping measures (e.g., keeping all exposed areas that are potential sources of pollutants clean, using such measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers)?	<input checked="" type="checkbox"/>	N	

NPDES Industrial Storm Water Checklist (MSGP)

Controls to Reduce Pollutants			Notes:
Does the SWPPP include a schedule for pickup and disposal of wastes and routine inspections of tanks and drums?	Y	<input type="checkbox"/> N	According to facility representatives this is conducted as needed but no longer than 90 days for hazardous waste.
Does the SWPPP include preventative maintenance procedures, including regular inspections, testing, maintenance, and repair of all industrial equipment and systems, and control measures, and back-up practices should a runoff event occur while a control measure is off-line?	<input checked="" type="checkbox"/> Y	N	
Does the SWPPP include a schedule for preventative maintenance procedures?	Y	<input type="checkbox"/> N	This was generally addressed in the plan with no schedule indicated. Staff relies on routine inspections to identify problems.
Does the SWPPP include procedures for minimizing the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills if or when they occur?	<input checked="" type="checkbox"/> Y	N	The refinery has an SPCC and has a dedicated fire department which responds to large spills. The maintenance staff responds to smaller spills. The facility also has the option to utilize a third party contractor to conduct spill cleanup when necessary.
Does the facility implement procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides," etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur?	<input checked="" type="checkbox"/> Y	N	
Does the facility implement preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling?	Y	<input type="checkbox"/> N	Outdoor storage of chemicals (please see Appendix A) occurs at the warehouse area. Totes appeared to be in good shape however there was no secondary containment in the event of a leak or breach of a container.
Does the facility implement procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases?	<input checked="" type="checkbox"/> Y	N	
Does the facility train employees who may cause, detect, or respond to a spill or leak in these procedures and have necessary spill response equipment available?	<input checked="" type="checkbox"/> Y	N	Multiple small spill kits (consisting of pigs, mats, absorbents, etc.) are located around the facility.
Does the facility document and follow procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies?	<input checked="" type="checkbox"/> Y	N	

NPDES Industrial Storm Water Checklist (MSGP)

Controls to Reduce Pollutants			Notes:
Does the SWPPP document erosion and sediment controls?	<input checked="" type="checkbox"/> Y	N	
Does the facility stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants?	<input checked="" type="checkbox"/> Y	N	The plan generally refers to passive revegetation where appropriate but no details are given.
Does the facility place flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion and/or settle out pollutants?	Y	<input checked="" type="checkbox"/> N	
If the facility stores salt at this facility, are the piles enclosed or covered? Does the facility implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile?	Y	N	N/A
Employee Training – is there a schedule for regular (at least annually) employee training?	<input checked="" type="checkbox"/> Y	N	
Does training cover both the specific control measures used to achieve the effluent limits in Part 2 and monitoring, inspection, planning, reporting, and documentation requirements in other parts of the permit?	<input checked="" type="checkbox"/> Y	N	
Does the facility ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged?	<input checked="" type="checkbox"/> Y	N	
Does the facility minimize generation of dust and off-site tracking of raw, final, or waste materials?	<input checked="" type="checkbox"/> Y	N	
Has the facility eliminated non-storm water discharges not authorized by an NPDES permit?	Y	<input checked="" type="checkbox"/> N	Please see explanation on the next page.

NPDES Industrial Storm Water Checklist (MSGP)

Notes on SWPPP Review

Site Description:

This inspection was conducted for two purposes: to acquaint the NMED staff with the facility in the anticipation of the issuance of an individual NPDES permit, and to assess the facility for compliance with the 2008 MSGP (Multi Sector General Permit for Stormwater Activities).

The refinery is located on 880 acres, 385 acres of which contain active refinery operations. The facility is a 24 hour/7 day operation and typically the operations staff works 12 hour shifts. There are approximately 225 people employed at the refinery, not including about 40-50 contractors who are at the facility on a routine basis. During a turnaround the employee population expands to approximately 1700. The refinery takes in crude oil and produces many products, including diesel, three grades of gasoline (83, 86 and 89 octane), fuel oil and ammonium thiosulfate. The facility produced JP8 (jet fuel) at one time but is not doing so currently. The production capacity of the facility is 26,000 BBL per day. 2012's actual production rate was 22,000 BBL and 2013's rate is currently at 25,000 BBL. The facility just completed a five year turnaround in October (September 10 – October 15), during which many new process units were installed, including a new CO boiler and a new isomerization unit. The facility has also made other recent changes such as installing a new wastewater system (description to follow), installing a SWATT unit (Sour Water Ammonium Thiosulfate Treatment Unit) to replace the old SRU (Sulfur Recovery Unit) and removing an old problematic API separator and installing a new API separator in a new location. The sulfur treatment results in two wastestreams – the old SRU (about 20% of the waste) results in a cake that is disposed offsite. The SWATT unit produces liquid ammonium thiosulfate (the other 80% of the waste), which is trucked offsite.

The new wastewater treatment system (please see Appendix B for the diagram), which was fully functional as of April 2012, consists of the new API separator, which then flows to the DGF feed tank. Coagulant and flocculant are added and the flow is added to the dissolved gas flotation unit (DGF). Once the flow exits the DGF, it is sent through the Macro-Porous Polymer Extraction (MPPE) unit, from which the facility can recover benzene and other hydrocarbons. The pore size in this unit is approximately 10-100 microns. Once treated, the water is theoretically RCRA compliant, and is discharged to the sanitary treatment pond. The sanitary treatment pond then flows to the existing evaporation ponds (#2-12). Storm water is also collected throughout the facility and directed (in most cases) to these ponds.

Outfall 002 is located near the rail rack on the eastern side of the facility. This outfall consists of two concrete barriers with a valving system to control discharges from the facility. Outfall 001 is located on the west side of the facility just south of Pond #8. There is a small pond prior to Outfall 001 to collect runoff, and the outfall is also operated by a valving system to control discharges. The evaporation ponds at the facility at the time of this inspection were extremely full (facility representatives indicated that this was due to the turnaround in September, and also due to the approximate 10% increase in production) and had about 1 foot of freeboard available. The evaporation ponds are unlined.

The inspectors noted during the site review at the warehouse/chemical storage area that chemicals were being stored outdoors exposed to the elements without secondary containment. Generally the chemical totes were in good condition, and part of the chemical inventory was stored under a roof. However, the nearest storm drain was approximately 20 feet away and could easily be impacted by a spill.

As the inspectors were looking at Outfall 001, they noted that there was major seepage coming through the toe of the berms at evaporation ponds # 7 & 8. Please see photos. The way that the seepage was occurring was a concern because the water is not captured by the small ponding area prior to Outfall 001 and could essentially become an uncontrolled point of discharge of process water.

NPDES Industrial Storm Water Checklist (MSGP)

Notes on SWPPP Review

There is a waterbody (an extension of the South Fork Puerco River) that enters Western Refining's property on the east side (which collects the stormwater discharges from Outfall 002 approximately 0.22 miles from the outfall) and then travels across the property to exit on the western side. Facility staff indicated that there was some concern with the flow entering their property at the northwestern corner and had put up a berm to prevent that from happening. Facility staff also indicated that no sampling had been conducted of this run-on to assess incoming pollutants to the site.

The facility currently uses two snow making machines to dewater the evaporation ponds. The concern associated with these devices is that the drift of the mist could travel outside the pond areas and contribute to contamination that is taken offsite through stormwater discharges, or even carried by the wind offsite completely. Facility staff indicated that a new system has been evaluated and will be installed in the next couple of months. The system is a Rain for Rent system and information provided by Western Refining staff is included as Appendix C. This system does not create as large a spray and should not contribute to the drift issue, according to permittee representatives.

Spills at the facility must be documented in the SWPPP. There was no documentation in the plan to indicate what spills had occurred at the time of the inspection, although facility staff was able to present the information dating back to 2010 while NMED inspectors were at the facility. Staff followed up with spill information dating back to 2006 via email two days after the inspection.

NPDES Industrial Storm Water Checklist (MSGP)

Inspections (Part 4)			
<u>General</u>	Notes:		
Routine Facility Inspections			
Are routine facility inspections conducted at least quarterly while facility operating?	<input checked="" type="checkbox"/> Y	N	Inspections are conducted monthly.
Are inspections documented, including: <ul style="list-style-type: none"> • Date and time • Name and signature of inspector • Weather information and a description of discharge occurring at the time of the inspection • Previously unidentified discharges from site • Control measures needing maintenance or repairs • Failed control measures that need replacement • Incidents of noncompliance observed • Additional control measures needed. 	Y	<input checked="" type="checkbox"/> N	All data was included but the signatures on these inspection reports did not include the required certification statement. (Please refer to Appendix B.1.B and B.11.E of the permit.)
Exceptions, including (see 4.1.3): <ul style="list-style-type: none"> • Inactive and unstaffed sites 	Y	N	N/A
Quarterly Visual Assessment			
Are quarterly visual assessments conducted?	<input checked="" type="checkbox"/> Y	N	
Does the assessment consist of a sample collected: <ul style="list-style-type: none"> • Within the first 30 minutes of discharge • On discharges that occur at least 72 hours (3 days) from the previous discharge • Collected in a clean, clear glass or plastic container. 	<input checked="" type="checkbox"/> Y	N	Documentation did not confirm that the samples were taken within the first 30 minutes of discharge.

NPDES Industrial Storm Water Checklist (MSGP)

Inspections		
Are assessments documented, including: <ul style="list-style-type: none"> · Sample location · Sample collection date/time & visual assessment date/time · Personnel collecting sample & performing assessment and their signature · Nature of the discharge (runoff or snowmelt) · Results of observations (including color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen and other obvious indicators) · Probable sources of contamination · If applicable, reason for not taking samples within 1st 30 minutes. 	<input checked="" type="checkbox"/>	N
Exceptions, including (see 4.2.3): <ul style="list-style-type: none"> · Adverse weather conditions · Climates with irregular storm water runoff · Areas subject to snow · Substantially identical outfalls (per 5.1.5.2) · Inactive and unstaffed sites. 	Y	N
Comprehensive Site Inspections		
Are comprehensive site inspections conducted annually (start 9/29/08)?	<input checked="" type="checkbox"/>	N
Conducted by qualified personnel including at least one member of the storm water pollution prevention team?	<input checked="" type="checkbox"/>	N
Cover all areas of the facility?	<input checked="" type="checkbox"/>	N
Include a review of monitoring data? Do inspectors consider the results of the past year's visual and analytical monitoring when planning and conducting inspections?	<input checked="" type="checkbox"/>	N

NPDES Industrial Storm Water Checklist (MSGP)

Inspections		
<p>Include observations of the following:</p> <ul style="list-style-type: none"> · Industrial materials, residue, or trash that may have or could come into contact with storm water · Leaks or spills from industrial equipment, drums, tanks, and other containers · Offsite tracking of industrial or waste materials, or sediment where vehicles enter or exit the site · Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas · Control measures needing replacement, maintenance, or repair · All storm water control measures observed. 	<input checked="" type="checkbox"/>	N
<p>Are inspections documented, including:</p> <ul style="list-style-type: none"> · Date of inspection · Names and titles of personnel making the inspection · Findings from examination of areas of facility from Part 4.3.1 · All observations relating to implementation of control measures · Any required revisions to the SWPPP resulting from inspection · Any incidents of noncompliance identified OR certification that facility is in compliance with the permit · A statement signed in accordance with Appendix B, Subsection 11 	<input checked="" type="checkbox"/>	N

NPDES Industrial Storm Water Checklist (MSGP)

Monitoring (Part 6)			
<u>General</u>	Notes:		
Does the SWPPP contain a procedure for conducting sector (and co-located) specific benchmark monitoring?	Y	N	N/A
Does the SWPPP contain procedures for conducting effluent limitations guidelines monitoring?	Y	N	N/A
Does the SWPPP contain a procedure for other monitoring (state or tribal specific; impaired waters; other as required)	Y	N	N/A
Are samples analyzed in accordance with 40 CFR Part 136 methods?	Y	N	N/A
Benchmark Monitoring			
Does the monitoring consist of a sample collected: <ul style="list-style-type: none"> · Within the first 30 minutes of discharge · On discharges that occur at least 72 hours (3 days) from the previous discharge · Document the date and duration (in hours) of the rainfall event, rainfall total (snow - date only) for that rainfall · Prior to commingling. 	Y	N	Benchmark monitoring not required for this facility.
Is monitoring conducted during each of the first four full quarterly (calendar) monitoring periods following permit coverage?	Y	N	Benchmark monitoring not required for this facility.
Is the average of the first four quarterly samples < the parameter benchmark?	Y	N	Benchmark monitoring not required for this facility.

NPDES Industrial Storm Water Checklist (MSGP)

Monitoring			
Is the average of the first four quarterly samples > the parameter benchmark? · Make the necessary modifications · Continue quarterly monitoring · Determine and document that no further pollutant reductions are technologically available and economically practicable and achievable, continue monitoring once per year, notify EPA · Natural background pollutant level documentation	Y	N	Benchmark monitoring not required for this facility.
Exceptions, including (see 6.1 & 6.2): · Adverse weather conditions · Climates with irregular storm water runoff · Snowmelt · Substantially identical outfalls (per 5.1.5.2) · Inactive and unstaffed sites.	Y	N	Benchmark monitoring not required for this facility.
Effluent Limitations Monitoring			
Sampled once per year?	Y	N	ELG Monitoring not required for this facility.
Follow-up requirements if discharge exceeds effluent limit (see 6.3)?	Y	N	
Other Required Monitoring			
· State or Tribal provisions · Discharges to impaired waters · Additional monitoring required by EPA.	Y	N	N/A
Reporting (Part 7)			
<u>General</u>		Notes:	
Is monitoring data reported to EPA within 30 days of receiving analytical results for the monitoring period?	Y	N	N/A
Is the annual report submitted by 45 days after conducting the comprehensive site inspection?	<input checked="" type="checkbox"/>	N	
If follow-up effluent limitations monitoring results exceed numeric limits, was a report submitted to EPA no later than 30 days after results were received?	Y	N	N/A

NPDES Industrial Storm Water Checklist (MSGP)

SWPPP Implementation	
<p>Measures to minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff</p>	<p><i>(e.g., use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away; locate materials, equipment, and activities so that leaks are contained in existing containment and diversion systems; clean up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants; use drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible; use spill/overflow protection equipment; drain fluids from equipment and vehicles prior to on-site storage or disposal; perform all cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray; and ensure that all washwater drains to a proper collection system)</i></p> <p>The facility did provide some roofing for chemicals stored at the warehouse area. Generally, though, most of the process is outdoors and exposed to precipitation.</p>
<p>Good Housekeeping</p>	<p><i>(e.g., keeping all exposed areas that are potential sources of pollutants clean, using such measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers)</i></p> <p>Facility staff labels all containers and appear to store materials properly. There was one instance noted at the warehouse storage where a flammable and an oxidizing chemical were stored near each other. This was also noted in the annual report from 2012 by a third party professional engineer. It was recommended that these compounds be segregated.</p>
<p>Preventative maintenance</p>	<p><i>(e.g., regular inspections, testing, maintenance, and repair of all industrial equipment and systems, and control measures, and back-up practices should a runoff event occur while a control measure is off-line)</i></p> <p>According to permittee representatives, preventative maintenance is conducted as needed; however, staff relies on monthly inspections to notice an issue.</p>

NPDES Industrial Storm Water Checklist (MSGP)

SWPPP Implementation	
Spill Prevention and Response	<p><i>(e.g., minimizing the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills if or when they occur)</i></p> <p>The refinery has their own dedicated fire department that responds to fire and large spills. Small spills are generally handled by maintenance staff, who utilizes various small spills kits placed around the facility. These small spill kits consist of pigs, mats, and absorbent materials such as kitty litter. The facility also has the option to utilize a third party contractor to clean up spills as needed.</p>
Erosion and Sediment Controls	<p><i>(e.g., stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, flow velocity dissipation devices at discharge locations and within outfall channels)</i></p> <p>Facility representatives indicated areas near the front of the facility where staff maintains a vegetated swale to slow down and infiltrate stormwater. Efforts have also been made in this area to put down gravel to help stabilize soils. Inspectors noted that chemical weed suppressant was being applied to the facility during this inspection. According to the MSDS for the chemical (attached as Appendix D), it is toxic to daphnia magna (water flea) which is commonly used for toxicity testing in New Mexico. This suppressant was being applied directly in front of Outfall 002.</p>
Management of Runoff	<p><i>(e.g., divert, infiltrate, reuse, contain, or otherwise reduce storm water runoff, to minimize pollutants in discharges)</i></p> <p>Generally stormwater is collected in small catchment basins immediately prior to the outfalls from this site. Most stormwater is collected from within the facility and treated and sent to the 12 evaporation ponds on site.</p>
Salt Storage Piles	<p><i>(e.g., enclose or cover piles appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile)</i></p> <p>No salt storage occurs at this facility.</p>

NPDES Industrial Storm Water Checklist (MSGP)

SWPPP Implementation	
Waste, Garbage and Floatable Debris	<p><i>(e.g., keep exposed areas free of such materials or by intercepting them before they are discharged)</i></p> <p>Site appeared clean of fltable materials at the time of this inspection.</p>
Evidence of non-storm water discharges	<p>There was seepage noted coming from Pond #8 at the time of this inspection. According to a review of Google Earth images (attached as Appendix E) it appears that this may have been occurring for some time. The concern with this particular location is that the seepage/runoff is not captured by Outfall 001.</p>
Dust Generation and Vehicle Tracking of Industrial Materials	<p><i>(minimize generation of dust and off-site tracking of raw, final, or waste materials)</i></p> <p>The facility appears to do a good job of preventing trackout of materials. The semi loading station appeared to be clean at the time of this inspection.</p>

NPDES Industrial Storm Water Checklist (MSGP)

Notes on SWPPP Implementation and Sector Specific Requirements

List and describe structural controls (*The selection, design, installation, and implementation of these control measures must be in accordance with good engineering practices and manufacturer's specifications*)

The sector-specific requirement that applies to this facility is as follows:

Part 8.C.2.1: Prohibition of Non-Stormwater Discharges:

The following are not covered by this permit: non-stormwater discharges containing inks, paints or substances (hazardous, nonhazardous, etc.) resulting from an onsite spill, including materials collected in drip pans; washwater from material handling and processing areas; and washwater from drum, tank, or container rinsing and cleaning.

In annual reports, it was indicated that there were issues with paint overspray and this was to be cleaned up in the future. This type of discharge cannot be comingled with a normal stormwater discharge. This is also another reason that documentation of spills and the cleanup response must be documented in the plan, to ensure that spills or other materials are not comingled with stormwater. This would result in an unauthorized discharge from the facility at this time.

Official Photograph Log

Photo # 1

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1432 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: One of the dual parts of Outfall 002. Stormwater flows into this basin and the concrete structure is valved to allow control of discharges. According to the permittee, most stormwater that makes it into the catchment evaporates here without a discharge. Note the green material at the bottom of the photograph is pesticide applications to prevent weed growth.		



NMED/SWQB

Official Photograph Log

Photo # 2

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1436 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Railyard loading area. This is directly south of the Outfall 002 discharge area. One half of the outfall is on either side of the train tracks.		



Official Photograph Log

Photo # 3

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1457 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Berm located at the northwestern corner of the site (above pond #11). This berm prevents flow from the natural drainage ditch that crosses the north end of the site from entering the property as run-on. It is possible that flow could be directed around ponds 7 & 8 and meet up with the discharge from Outfall 001.		



Official Photograph Log

Photo # 4

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1501 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Photo taken above ponds 12A and 12B. Photo demonstrates the high water level in the evaporation ponds. Permittee estimated that there was approximately one foot of freeboard in the ponds.		

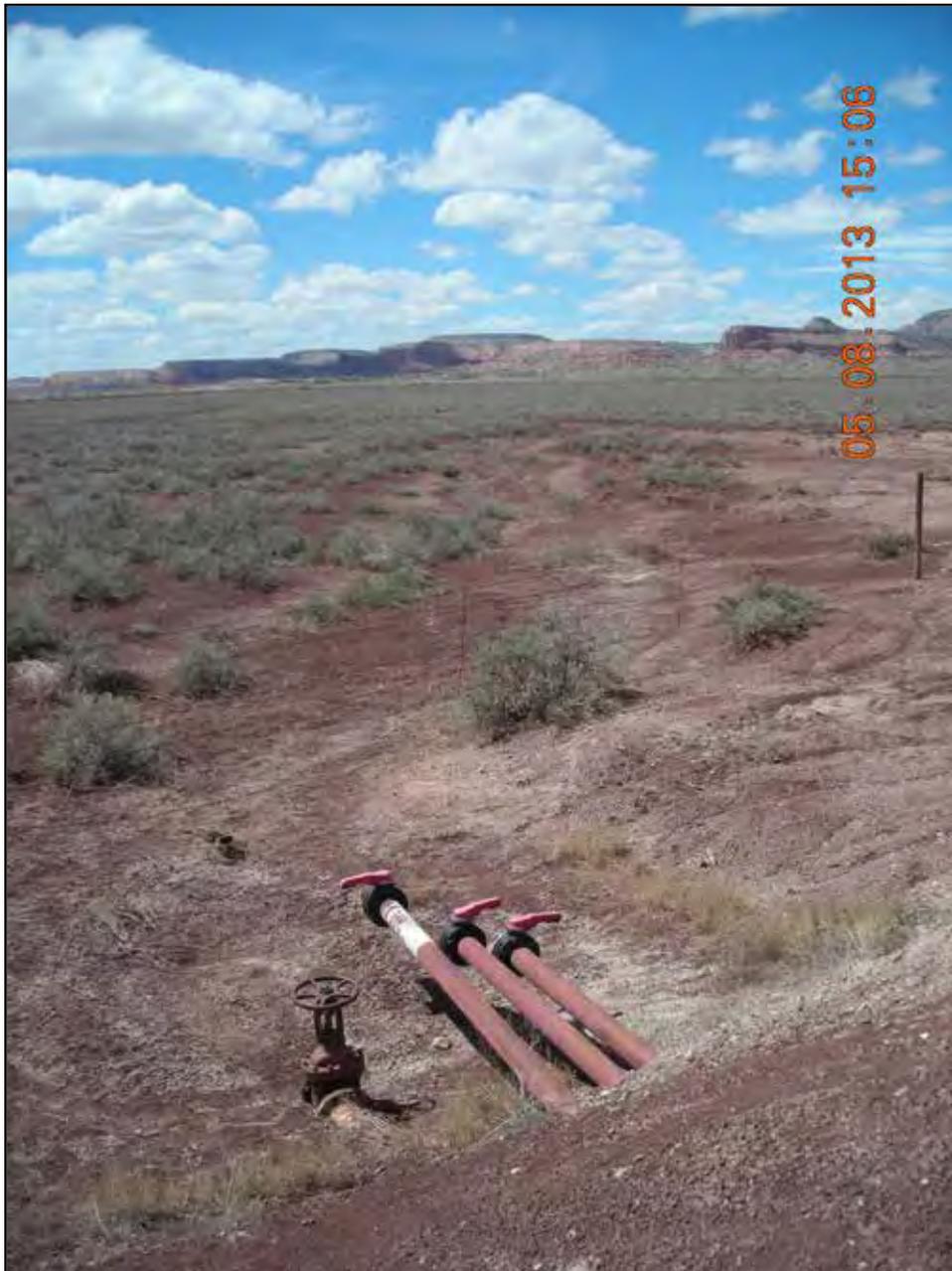


NMED/SWQB

Official Photograph Log

Photo # 5

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1506 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Outfall 001. From here, it is approximately 0.77 miles to the South Fork Puerco River.		



NMED/SWQB

Official Photograph Log

Photo # 6

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1506 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Catchment pond prior to Outfall 002.		



Official Photograph Log

Photo # 7

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1508 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: From Outfall 002, looking north at Pond #8. Significant seepage from the pond is evident most of the way around the pond.		



NMED/SWQB

Official Photograph Log

Photo # 8

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1513 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Looking west just above Pond #8.		



Official Photograph Log

Photo # 9

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1522 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Location of the old API separator. There was still some seepage coming from the units in this area, which was being directed to one of the aeration ponds.		



Official Photograph Log

Photo # 10

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1513 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Warehouse chemical storage area. Numerous totes are stored outside without secondary containment. The nearest storm drain is about 20 feet to the right of the photographer.		



NMED/SWQB

Official Photograph Log

Photo # 11

Photographer: Sarah Holcomb	Date: 5-8-2013	Time: 1538 hours
City/County: Near Gallup, McKinley County		
Location: Western Refining facility.		
Subject: Some chemicals at the warehouse storage area were kept under roofing.		



Appendix A

CHEMICAL INVENTORY

Product	Normal Usage Volumes	Location
Antifreeze	12 - 55 gallon drums	Process Area
Ethylene Glycol	5 - 35 gallon totes	SATS Unit
Z Seal (ethylene glycol)	6 - 55 gallon drums	Vapor Recovery Unit
Automatic Trans. Fluid	4 - 55 gallon drums	Main. Shops
Engine Oil	10 - 55 gallon drums	Diesel Bldg.
Turbine Oil	22 - 55 gallon drums	Process Area
Hydraulic Fluid	4 - 55 gallon drums	FCC Unit
Gear Oil	8 - 55 gallon drums	Process Area
Transformer Oil	22 - 55 gallon drums	Process Area
Grease	<100 - 14 oz. tubes	Process Area
Spindle Oil	2 - 55 gallon drums	Process Area
Lube Oil	1000 gallon bulk tank	Gas Compressor Area
Lube Oil	1000 gallon bulk tank	Plan Compressor Area
80 Octane Additive	4 - 55 gallon drums	Laboratory storage
Isopropyl Alcohol	8 - 55 gallon drums	Platformer
Perchloroethylene	4 - 55 gallon drums	Platformer
Salt	2 - 50# sacks	Combustor Warehouse
Salt	2 - 2000# supersacks	Warehouse
Salt	100,000 bulk storage	Boiler Area
Neutralizing Amine	400 gallon bulk tank	Boiler Area
Antifoam Agent	400 gallon bulk tank	Boiler Area
Scale Inhibitor	400 gallon bulk tank	Boiler Area
Tower Bromine	4 - 500# totes	Cooling Tower Area
Corrosion Inhibitor	10,000# bulk storage	Cooling Tower Area
Scale Dispersant	10,000# bulk storage	Cooling Tower Area
Bleach	1 - 30 gallon totes	Boilerhouse
Sulfuric Acid	50,000# bulk storage	Cooling Tower Area
Hydrofluoric Acid	50,000# bulk storage	Alkylation Unit
Potassium Hydroxide	20 tons bulk storage	Alky Unit/SATS
Potassium Hydroxide	15 - 2000# sacks	Alky Unit
Sodium Carbonate	40 - 55# bags	Alky Unit

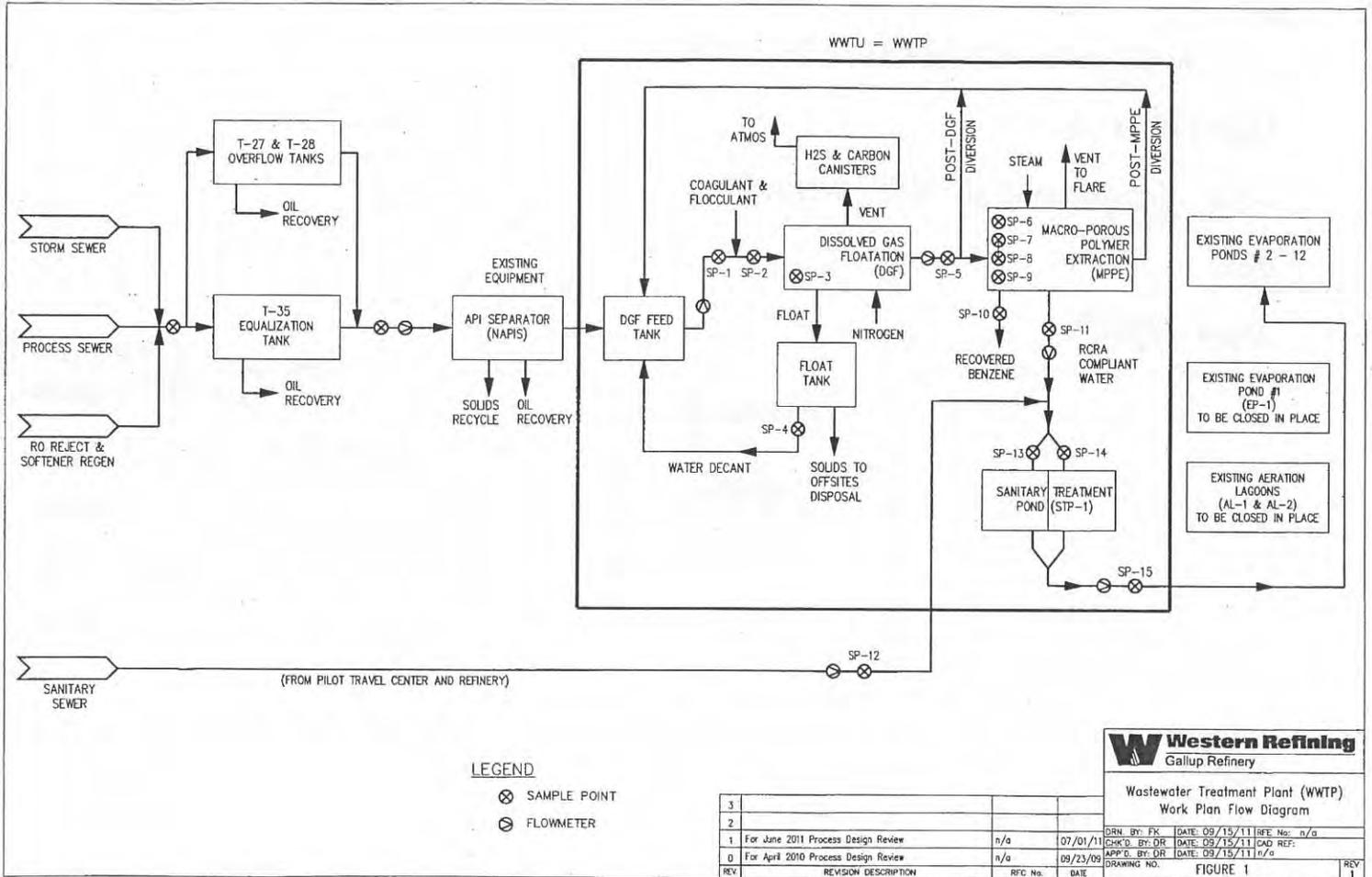
CHEMICAL INVENTORY

Product	Normal Usage Volumes	Location
Antifoam	10 gallons	SATS
Methanol	5 - 400 gallon totes	SATS/Fuel Gas
Ammonium Thiosulfate	1 - 300 gallon tote	Sulfur Recovery Unit (SRU)
Iron Chelate Mixture	2 - 3,500 gallon bulk tank	SRU
Merox	30 - 1 gallon jugs	Treaters
Promoter	2 - 400# drums	FCC
Stabilizing Amine	500 gallon bulk tank	FCC
Corrosion Inhibitor	220 gallon bulk tank	Crude Unit
Corrosion Inhibitor	220 gallon bulk tank	Crude Unit
Scale Inhibitor	500 gallon bulk tank	Crude Unit
Neutralizing Amine	500 gallon bulk tank	Crude Unit
Xylene (Red Dye)	4 - 330 gallon totes	Loading Rack
Ethyl Hitech 3023	60,000# bulk tank	Loading Rack
Ethyl Mercaptan	2000# bulk tank	Loading Rack
Pour Point Depressant	2000 gallon bulk tank	Tank Farm
T-3512	2 - 500 gallon totes	Tank Farm
DGS - 105	3 - 500 gallon totes	Tank Farm

STORMWATER BASINS

These Basins have been previously evaluated in this document.

Appendix B

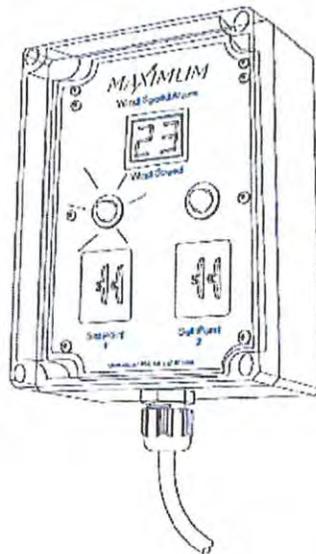


Appendix C

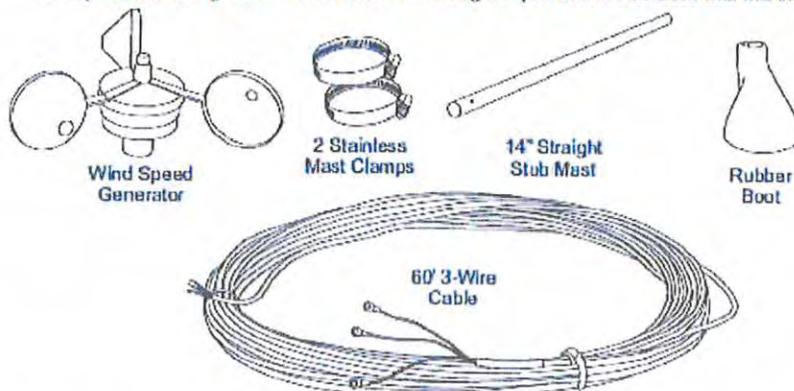
Forced Evaporation

Wind Alarm

In some cases wind drift from the sprinklers may not be desirable, and operation during windy conditions is prohibited. In this case a wind alarm/ controller can be employed on the system. The wind alarm can be installed either a Lofa Panel, Controls Inc pump control panel on our rental pumps, or wired into the control panel on our electric pump. The wind alarm has two set points. When the wind conditions are between the two set points on the controller the system will continue to operate. Normally the low set point would be set to 1 MPH. When the wind conditions exceed the second set point the relay will engage and shut the system down. The wind alarm should be ordered with a latching relay and manual reset switch to prevent system cycling. The wind alarm can be purchased from Maximum Inc. (508) 995-2200 or www.maximum-inc.com.



Components: Along with the indicator, the following components are included with this instrument:



Units of Measure: Instrument can be factory calibrated to read MPH, Knots, Km/h or M/S.

Figure 9

Forced Evaporation

Typical Installation

SYSTEM DESIGN INFORMATION

THIS IS A SOLID SET EVAPORATION SYSTEM FOR A 350' X 550' SPUD WATER POND.
 SPRINKLER IS SPRAY SYSTEMS SPIRAL-JET, 60 DEG TRAJECTORY, 3/16 INCH NOZZLE, MODEL# 3/8-RS1-PVC-60-10,, OR EQUAL.
 SPRINKLER DISCHARGES 9.0 GPM @ 90 PSI NOMINAL.
 LATERALS ARE 2" OR 1 1/2" HDPE, RISES ARE 1/2" SCHEDULE 80.
 OPERATING PRESSURE IS 100 PSI AT THE PUMP, PRESSURE VARIATION IS LESS THAN 20%.
 SYSTEM IS DESIGNED TO RUN IN ONE SET, ~1020 GPM MAX REQ'D.
 FILTERS REQUIRED: ONE 8" 0F-1000 SCREEN FILTER USING ONLY THE STEEL SCREENS NO BAGS.
 INFIELD SCREENS ARE PRESUMED TO HAVE MINIMAL HYDRAULIC EFFECT.
 OPERATION IS MANUAL, WITH OPERATING DURATION AND FREQUENCY DEPENDENT UPON EVAPORATION REQUIREMENTS AND OTHERS SCHEDULING PREFERENCE.
 EVAPORATION RATE IS ALL VARY DEPENDING ON WEATHER CONDITIONS.

OPTIONAL HIGH WIND SYSTEM SHUT DOWN IS AVAILABLE ON REQUEST, MAXIMUM IAC WIND ALARM AND CONTROLLED.
 WWW.MANIKJV-INC.COM

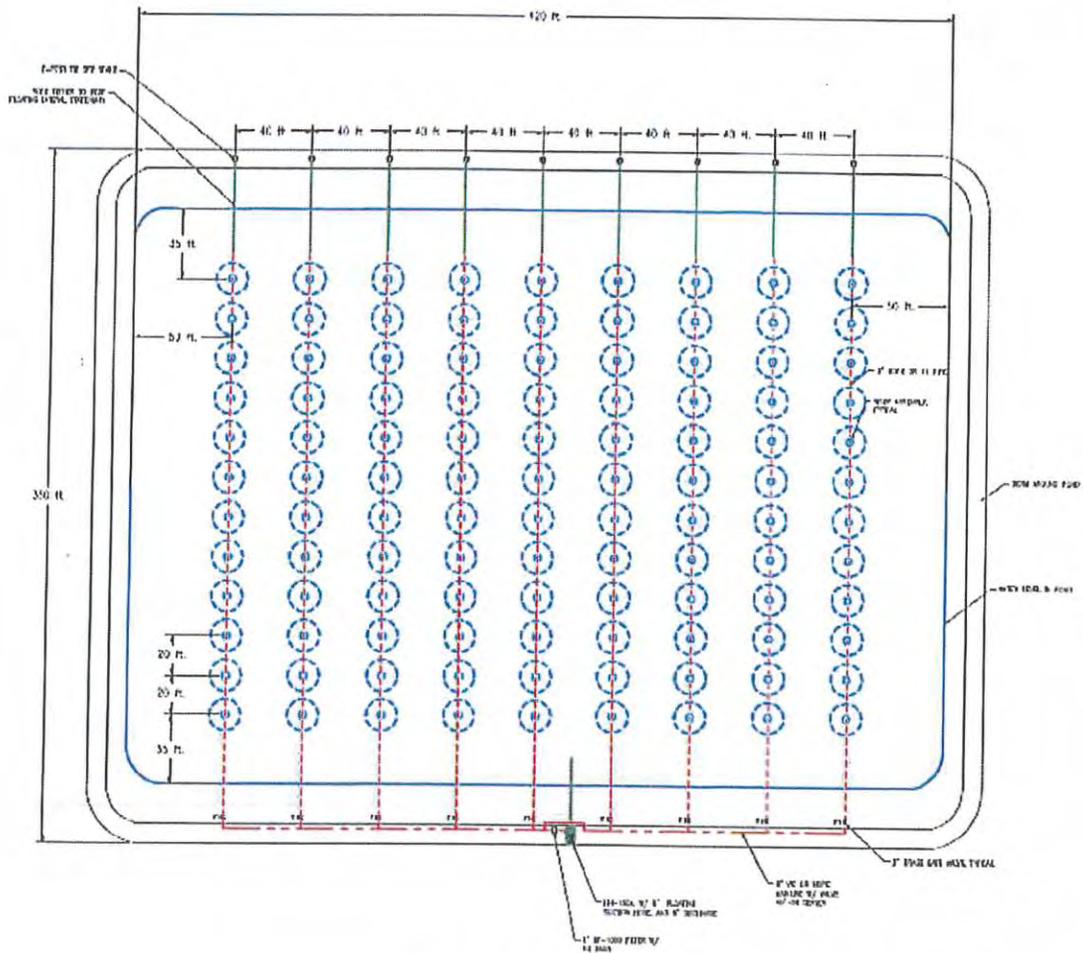


Figure 1

Forced Evaporation



Figure 2



Figure 3

Forced Evaporation



Figure 4

Floating Riser Assembly

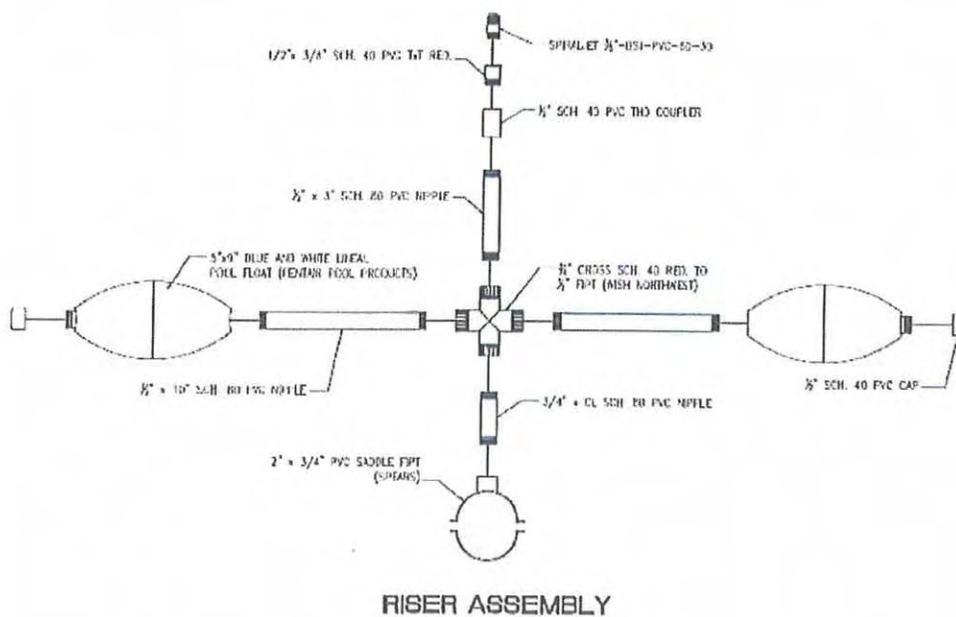


Figure 5

Forced Evaporation

The 5"x9" Pentair Pool Products polyethylene safety float in Figure 5 can be purchased online at any number of pool supply sites. The 2" x 3/4" PVC mechanical pipe saddle can be purchased from Spears Plastic Piping Products (818) 364-1611. Rain For Rent is a long time vendor of Spears. All the other small PVC parts can be bought locally at Home Depot or equivalent hardware store.

Evaporation Sprinklers

The preferred sprinkler to use is the Spiral Jet made by Spraying Systems Company (1-888-95 SPRAY) model number 3/8-BSJ-PVC-60-30. The sprinkler has a 3/8" male pipe thread connection as shown on the riser assembly. It has a 60 degree spray angle and produces a flow rate of 9.5 gallons per minute at 100 psi pressure at the sprinkler head. Other materials of construction are available such as brass, stainless, and Teflon. These sprinklers are not in stock and there is normally a 4 to 6 week lead time for delivery.

Alternate sprinklers that can be use are the Bete (1-413-772-0846) TF hollow cone sprinkler. Model number for the Bete is TF12- 60-degree-PVC.

The other alternate sprinkler that can be used is made by Senninger Irrigation Inc. (1-407-877-5655) Super Spray sprinkler. This sprinkler has a 1/2" male pipe thread connection. The model number is the Super Spray Sprinkler with the #12 red nozzles with the black evaporation deflector pad. These head are normally in stock and are cheaper than the above two options, but don't perform quite as well as the two above options.



Super Spray shown with evaporation pad.

Figure 6

Mainline Distribution Pipe

The mainline distribution pipe coming from the supply pump and feeding the 2" HDPE lateral lines must be capable of pressures up to 100 psi. Typical pipe used for this is Industrial Aluminum line (Victaulic Ends), or HDPE DR 17 poly pipe. Size of mainline distribution pipe will vary depending on the flow rate required on the system, 6" and 8" are the most

Forced Evaporation

common sizes. A steel reducing tee is normally used to feed the 2" lateral line when using Aluminum Industrial pipe and a mechanical saddle is used to feed the 2" lateral line when using HDPE poly pipe. See Figure 3 for example using Aluminum Industrial Line.

Lateral Supply Line

The standard sprinkler supply line is 2" DR 17 HDPE poly pipe. Each sprinkler should be spaced a minimum of 20 feet along the lateral, with a maximum number of 12 sprinklers per lateral. Lateral line should be spaced a minimum distance of 40 feet apart for optimum performance. The end of the lateral lines should be tied off to a stationary object to prevent wind drift. Adequate space should be used between the sprinkler and bank to prevent over spray out of the pit. See Figure 7 below.



Figure 7

Forced Evaporation

System Accessories

Filter

An in-line screen filter on the discharge of the pump is recommended. Sizes can vary depending on the system flow rate. Check with the manufacturer or engineering for size requirements. A minimum of 40 mesh, 1/16", or 400 micron is recommended to minimize nozzle plugging. Check with the following vendors for pricing and availability: Clemons Irrigation (208) 345-2525; Morrill Industries (209) 838-2550.

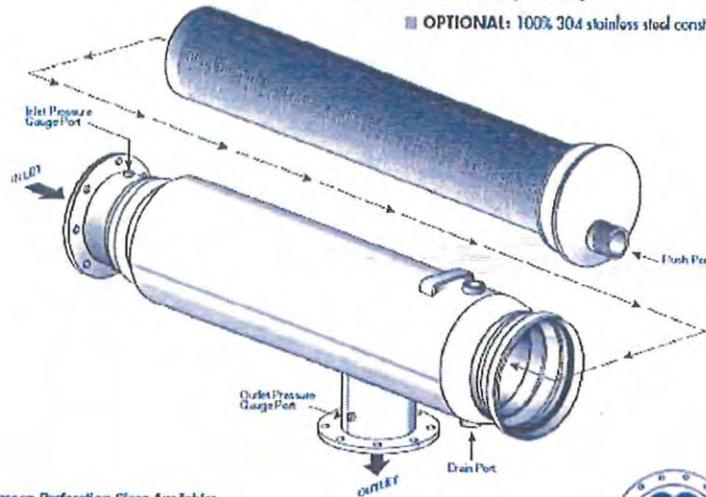
1000 SERIES **Horizontal Irrigation Filter**

○ **Our Product:** Every 1000 Series Horizontal Irrigation Filter is produced from the highest quality material and manufacturing standards found in today's industry.

○ **Construction Materials:** (All Materials)

■ **STANDARD:** 10 gauge galvanized bodies with 304 stainless steel screens and end cap assembly.

■ **OPTIONAL:** 100% 304 stainless steel construction.



Screen Perforation Sizes Available:

- .125 (1/8")
- .050
- .062 (1/16")
- .033 (1/32")

Sizes Available:

- MODEL 1000 1200 G.P.M.
- MODEL 1005 750 G.P.M.
- MODEL 1010 400 G.P.M.

Flow Rates:

No Minimum Flow Rate Required

All G.P.M. flow ratings are based on 25% plugged screen factor with less than 1 P.S.I. pressure loss in all filter sizes.

Working Pressure:

- Standard - 120 lbs. P.S.I.
- Optional - 175 lbs. P.S.I.



IRRIGATION EQUIPMENT MANUFACTURING
24754 East Flyer Road, Escalon, CA 95320

Phone: (209) 838-2550
Fax: (209) 838-2544

www.morrillinc.com

Figure 8

Appendix D

Material Safety Data Sheet



DuPont™ Perspective™ Herbicide

Version 2.3

Revision Date 12/13/2010

Ref. 130000050672

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DuPont™ Perspective™ Herbicide
Tradename/Synonym : DPX-Q2K06 WG
B12846349
AMINOCYCLOPYRACHLOR: 6-Amino-5-chloro-2-cyclopropyl-4-pyrimidinecarboxylic acid
CHLORSULFURON: 2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl] benzenesulfonamide

MSDS Number : 130000050672

Product Use : Herbicide

Manufacturer : DuPont
1007 Market Street
Wilmington, DE 19898

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency : CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

Harmful if swallowed. Causes moderate eye irritation. Do not get in eyes or on clothing.

Potential Health Effects

This section includes potential acute adverse effects which could occur if this material is not used according to the label.

Skin : May cause: Irritation with discomfort or rash.

Eyes : May cause: Irritation with discomfort, pain, redness, or visual impairment.

Carcinogenicity

Material Safety Data Sheet



DuPont™ Perspective™ Herbicide

Version 2.3

Revision Date 12/13/2010

Ref. 130000050672

Material	IARC	NTP	OSHA
Titanium dioxide	2B		

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Aminocyclopyrachlor	858956-08-8	39.5 %
Chlorsulfuron	64902-72-3	15.8 %
Other Ingredients		44.7 %

Present as an impurity in the clay component of this product:

Titanium Dioxide		<1 %
------------------	--	------

SECTION 4. FIRST AID MEASURES

- Skin contact : The material is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable.
- Eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- Inhalation : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.

Material Safety Data Sheet



DuPont™ Perspective™ Herbicide

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- Ingestion : Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious person.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO2)
- Firefighting Instructions : In the event of fire, wear self-contained breathing apparatus. Wear full protective equipment.
If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. In the event of fire, cool tanks with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Wear personal protective equipment.
- Spill Cleanup : Sweep up and shovel into suitable containers for disposal.
- Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas.

SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove

Material Safety Data Sheet



DuPont™ Perspective™ Herbicide

Version 2.3

Revision Date 12/13/2010

Ref. 130000050672

clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Handling (Physical Aspects) : Keep away from heat and sources of ignition.

Storage : Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in original container. Store in a cool, dry place. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Skin and body protection : Applicators and other handlers must wear:
Long sleeved shirt and long pants
Chemical resistant gloves made of any waterproof material
Shoes plus socks

Protective measures : Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Exposure Guidelines

Exposure Limit Values

Aminocyclopyrachlor

AEL * (DUPONT) 5 mg/m3 8 & 12 hr. TWA Respirable dust.

AEL * (DUPONT) 10 mg/m3 8 & 12 hr. TWA Total dust.

Chlorsulfuron

AEL * (DUPONT) 10 mg/m3 8 & 12 hr. TWA Total dust.

AEL * (DUPONT) 5 mg/m3 8 & 12 hr. TWA Respirable dust.

Titanium dioxide

PEL: (OSHA) 15 mg/m3 8 hr. TWA Total dust.

Material Safety Data Sheet



DuPont™ Perspective™ Herbicide

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Ref. 130000050672

TLV	(ACGIH)	10 mg/m3	TWA	
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Total dust.
AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Respirable dust.

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: granular
Color	: cream, light tan
Odor	: slight
pH	: 5.6
Bulk density	: 0.57 mg/l
Water solubility	: dispersible

SECTION 10. STABILITY AND REACTIVITY

Stability	: Stable at normal temperatures and storage conditions.
Conditions to avoid	: None reasonably foreseeable.
Incompatibility	: No materials to be especially mentioned.

SECTION 11. TOXICOLOGICAL INFORMATION

DuPont™ Perspective™ Herbicide	
Inhalation 4 h LC50	: > 5.11 mg/l , rat
Dermal LD50	: > 5,000 mg/kg , rat
Oral LD50	: > 5,000 mg/kg , rat
Skin irritation	: slight irritation, rabbit 5 / 11

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- Eye irritation : Moderate eye irritation, rabbit
- Sensitisation : Animal test did not cause sensitization by skin contact., mice
- Aminocyclopyrachlor
 - Carcinogenicity : Animal testing did not show any carcinogenic effects.
 - Mutagenicity : Evidence suggests this substance does not cause genetic damage in cultured bacterial cells.
Evidence suggests this substance does not cause genetic damage in cultured mammalian cells.
Evidence suggests this substance does not cause genetic damage in animals.
 - Reproductive toxicity : No toxicity to reproduction
 - Teratogenicity : Evidence suggests the substance is not a developmental toxin in animals.
- Chlorsulfuron
 - Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
 - Inhalation
rat
Reduced body weight gain, Kidney effects, Spleen effects, Bloody urine, bone marrow changes
 - Oral
rat
Reduced body weight gain, altered blood chemistry
 - Oral
dog
Abnormal decrease in number of red blood cells
 - Carcinogenicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

A slight increased incidence in tumors was observed in one species, but not in other species.



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Target(s):
Leydig cells

- Mutagenicity : Did not cause genetic damage in cultured bacterial cells.
Did not cause genetic damage in animals.
Did not cause genetic damage in cultured mammalian cells.
- Reproductive toxicity : Animal testing showed no reproductive toxicity.
- Teratogenicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
- Titanium Dioxide
Carcinogenicity : Based upon all available study results, DuPont scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Aminocyclopyrachlor

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 122 mg/l
- 96 h LC50 : Lepomis macrochirus (Bluegill sunfish) > 120 mg/l
- 72 h EC50 : Pseudokirchneriella subcapitata (green algae) > 122 mg/l
- 72 h EC50 : Anabaena flos-aquae (cyanobacteria) 7.4 mg/l
- 96 h EC50 : Daphnia magna (Water flea) 43 mg/l

Chlorsulfuron

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 122 mg/l
- 96 h LC50 : Lepomis macrochirus (Bluegill sunfish) > 128 mg/l

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- 96 h LC50 : Cyprinodon variegatus (sheepshead minnow) > 980 mg/l
- 120 h EbC50 : Pseudokirchneriella subcapitata (green algae) 0.05 mg/l
- 48 h EC50 : Daphnia magna (Water flea) > 112 mg/l

Toxicity to other organisms

Aminocyclopyrachlor

- LD50 : Colinus virginianus (Bobwhite quail) > 2,075 mg/kg Oral
- LC50 : Colinus virginianus (Bobwhite quail) > 5,620 ppm Dietary
- LC50 : Anas platyrhynchos (Mallard duck) > 5,620 ppm Dietary

Chlorsulfuron

- LD50 : Anas platyrhynchos (Mallard duck) > 5,000 mg/kg Oral
- LD50 : Colinus virginianus (Bobwhite quail) > 5,000 mg/kg Oral
- 8 d LC50 : Colinus virginianus (Bobwhite quail) > 5,620 mg/kg Dietary
- 8 d LC50 : Anas platyrhynchos (Mallard duck) > 5,620 mg/kg Dietary

Additional ecological information : Environmental Hazards: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate. See product label for additional application instructions relating to environmental precautions.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Do not contaminate water, food or feed by disposal. Wastes resulting from the

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use of this product must be disposed of on site or at an approved waste disposal facility.

Container Disposal

: Container Refilling and Disposal:
Refer to the product label for instructions.
Do not transport if this container is damaged or leaking.

In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3077
	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Chlorsulfuron)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3077
	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Chlorsulfuron)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Chlorsulfuron)

Not regulated as a hazardous material by DOT.

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s) : Chlorsulfuron

Title III hazard : Acute Health Hazard: Yes

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classification Chronic Health Hazard: No
Fire: No
Reactivity/Physical hazard: No
Pressure: No

EPA Reg. No. : 352-846
In the United States this product is regulated by the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPATSCA.

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.Chlorsulfuron

PA Right to Know : Substances on the Pennsylvania Hazardous Substances List present at Regulated Chemical(s) a concentration of 1% or more (0.01% for Special Hazardous Substances): Kaolin , Sodium sulphate

SECTION 16. OTHER INFORMATION

	NFPA	HMIS
Health :	1	1
Flammability :	1	1
Reactivity/Physical hazard :	0	0

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Contact person : DuPont Crop Protection, Wilmington, DE, 19898, Phone: 1-888-638-7668

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Material Safety Data Sheet



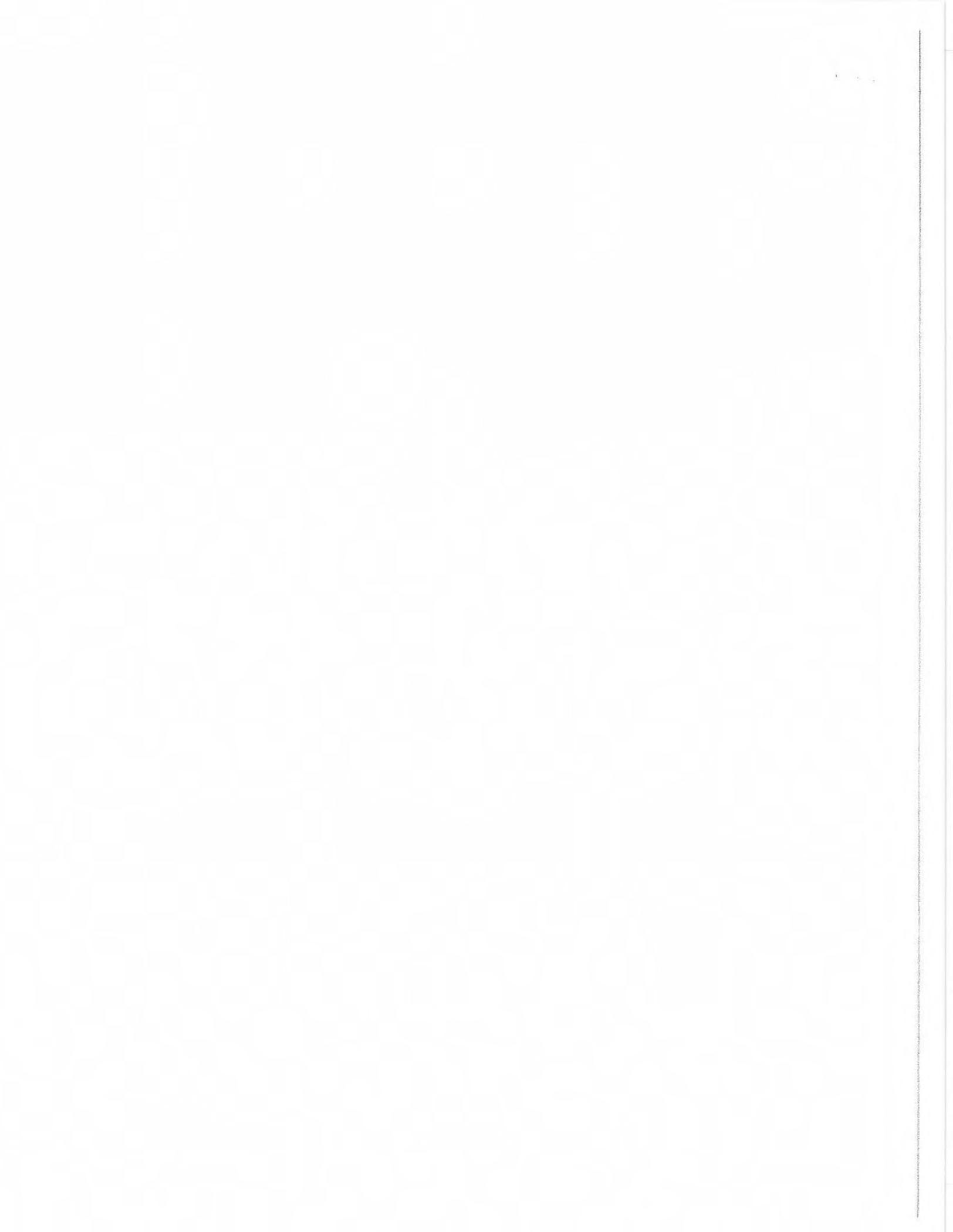
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Significant change from previous version is denoted with a double bar.



MATERIAL SAFETY DATA SHEET

SAVAGE® DRY SOLUBLE HERBICIDE

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FORMULATED FOR:

LOVELAND PRODUCTS, INC.
P.O. Box 1286 • Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300

Medical Emergencies: 1-800-301-7976

U.S. Coast Guard National Response Center: 1-800-424-8802

PRODUCT NAME: SAVAGE® DRY SOLUBLE HERBICIDE

CHEMICAL NAME: 2,4-D; Dimethylamine salt of 2,4-dichlorophenoxyacetic acid

CHEMICAL FAMILY: Phenoxy Herbicide

EPA REG. NO.: 34704-606

MSDS Number: 000606-08b-LPI

MSDS Revisions: Sections 1, 4, 8, 12, and 13 Date of Issue: 08/20/08

Supersedes: 07/29/08

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – DANGER – PELIGRO – Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle (If you do not understand the label, find someone to explain it to you in detail.) Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed or inhaled. May be fatal if absorbed through skin. Do not get on skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid breathing spray mist. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse.

This product is off-white to tan-colored crystalline solid with "fishy" amine-like odor. Primary routes of entry are Inhalation, eye contact and skin contact.

3. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Ingredients:	Percentage by Weight:	CAS No.	TLV (Units)
Dimethylamine salt of 2,4-D 2,4-D Acid (CAS: 94-75-7)	95.00	2008-39-1	10 mg/m ³
Dimethylamine (CAS: 124-40-3)			
Inert Ingredients	5.00		

4. FIRST AID MEASURES

If in eyes:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
If inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
NOTE TO PHYSICIAN:	If in eyes, specialized ophthalmologic attention may be necessary. If swallowed, probable mucosal damage may contraindicate gastric lavage. There is no specific antidote; treat symptomatically.
FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-301-7976.	Have the product label or container with you when calling a poison control center or doctor, or going for treatment.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method):	Not applicable
FLAMMABLE LIMITS (LFL & UFL):	Not established
EXTINGUISHING MEDIA:	Considered non-combustible, use medium appropriate to surrounding fire. Dry chemical, carbon dioxide, foam, water spray or fog.
HAZARDOUS COMBUSTION PRODUCTS:	May include but are not limited to ammonia, oxides of nitrogen, chlorine-containing compounds and other unknown hazardous materials may be formed in a fire situation. Incomplete combustion may lead to formation of oxides of carbon.
SPECIAL FIRE FIGHTING PROCEDURES:	Smoke and fumes from fire may contain hazardous components. Wear self-contained breathing apparatus and full protective gear. Fight fire from upwind and keep all non-essential personnel out of area of intense smoke.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	If water is used to fight fire, contain run-off, using dikes to prevent contamination of water supplies.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Avoid breathing dusts. Contain spill and sweep up material and transfer to containers for possible land application according to label use or for proper disposal. Wash spill area with water containing strong detergent, absorb and sweep up as above. Check local, state and federal regulations for proper disposal.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE: Store in a safe manner. Store in original container only. Store in a cool, dry place. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Enclosed Cockpits: Pilot must use an enclosed cockpit that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)]. Water-soluble packets (WSP): When used correctly WSP qualify as a closed loading system under the WPS. Mixers and loaders using water-soluble packets (1) must wear the PPE specified above for mixers and loaders and (2) must be provided, have immediately available for use in an emergency, such as a broken package, spill, or equipment breakdown a NIOSH approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P, or HE filter.

RESPIRATORY PROTECTION: Not normally required, if vapors or dusts exceed acceptable levels, wear a MSHA/NIOSH approved pesticide respirator.

EYE PROTECTION: Chemical goggles or shielded safety glasses.

SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, shoes with socks. Wear rubber or chemical-resistant gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
2,4-D Acid	10 mg/m ³	10 mg/m ³

Personal Protective Equipment: All mixers, loaders, applicators, flaggers, and other handlers must wear: coveralls over short sleeved shirt and short pants, chemical-resistant footwear and socks, chemical-resistant gloves, and protective eyewear. Chemical-resistant apron must be worn when applying post harvest dips or sprays to citrus, applying with any handheld nozzle or equipment, mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate. For overhead exposure wear chemical-resistant headgear. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Off-white to tan colored crystalline solid with "fishy" amine-like odor	SOLUBILITY: Soluble
SPECIFIC GRAVITY (Water = 1): 0.561 g/ml	pH: 9.0 (5% solution)
VAPOR PRESSURE: Not applicable	BULK DENSITY: 35 lbs/ft ³
PERCENT VOLATILE (by volume): Not applicable	BOILING POINT: Not applicable
Note: These physical data are typical values based on material tested but may vary from sample to sample.	EVAPORATION RATE (Butyl Acetate = 1): <1
Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.	

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBILITY: Strong acids and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Ammonia, oxides of nitrogen, chlorine-containing compounds and other unknown hazardous materials may be formed in a fire situation. Incomplete combustion may lead to formation of oxides of carbon.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Excessive heat.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (rat): 1470 mg/kg	Acute Dermal LD₅₀ (rabbit): >2000 mg/kg
Eye Irritation (rabbit): Corrosive; causes Irreversible eye damage	Skin Irritation (rabbit): Not an irritant
Inhalation LC₅₀ (rat): >5.46 mg/L (4 Hour) [male rat].	Skin Sensitization (guinea pig): Sensitizer
Carcinogenic Potential: None listed in OSHA, NTP, IARC or ACGIH	

12. ECOLOGICAL INFORMATION

This product may be toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark except as permitted on the product label. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

13. DISPOSAL CONSIDERATIONS

Do not reuse container. **Paper Bag:** completely empty bag into the application equipment. Then dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. **Nonrefillable container:** Do not reuse or refill the containers. Offer for recycling, if available. Clean container promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat the procedure two more times. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. Do not contaminate water, food or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT Shipping Description: NOT REGULATED BY USDOT.

U.S. Surface Freight Classification: COMPOUND, TREE OR WEED KILLING, NOI (NMFC 50320, SUB 2: CLASS: 60)

Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:		NFPA		HMIS
3	Health	0	Least	3 Health
0	Flammability	1	Slight	0 Flammability
0	Instability	2	Moderate	0 Reactivity
		3	High	H PPE
		4	Severe	

SARA Hazard Notification/Reporting

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
 Delayed Y Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: 2,4-D Acid (CAS: 94-75-7) 100 pounds

SARA, Title III, Section 313: 2,4-D Acid (CAS: 94-75-7) ±79.0%

RCRA Waste Code: U240; D016

CA Proposition 65: Not listed

16. OTHER INFORMATION

MSDS STATUS: Sections 1, 4, 8, 12, and 13 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/ Regulatory Services

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MATERIAL SAFETY DATA SHEETSECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY ADDRESS:
ALBAUGH, INC.
Ankeny, IA 50021

EMERGENCY TELEPHONE NUMBERS:
(800) 424-9300 (CHEMTREC, transportation and spills)

PRODUCT NAME : CLETHODIM 2E
CHEMICAL NAME : Clethodim: (E,E)-2-[1-[[[(3-Chloro-2-propenyl)oxy]imino]propyl]-5-[2-(ethylthio)propyl]-3-hydroxy-2-cyclohexen-1-one
CHEMICAL FAMILY : cyclohexanedione oxime herbicide
PRODUCT CODE : EPA Reg. No. 42750-72

SECTION 2 - COMPOSITION, INFORMATION OF INGREDIENTS

COMPONENT	PERCENTAGE	CAS NUMBER	OSHA PEL	ACIGH TLV
Clethodim	25 – 27	99129-21-2	-	-
Petroleum distillates (contains)*	65 – 70	64742-94-5	-	100 ppm
*Trimethylbenzene	2 – 3	-	-	25 ppm TWA
*Naphthalene	5 – 7	91-20-3	10 ppm TWA	10 ppm TWA

SECTION 3 - HAZARDS IDENTIFICATION SUMMARY

(As defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200)

HEALTH HAZARDS: Moderate eye irritant.

PHYSICAL HAZARDS: Combustible, may release toxic fumes if burned.

ENVIRONMENTAL HAZARDS: Slightly toxic to fish, other water organisms and bees.

SECTION 4 - FIRST AID MEASURES

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless told to do so by the poison control center or doctor.

NOTE TO PHYSICIAN: Contains a petroleum distillate solvent, vomiting may cause aspiration pneumonia and may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5 - FIRE FIGHTING MEASURES

FLASHPOINT (method): 65 C (closed cup)

FLAMMABLE LIMITS (LFL-UFL): Unknown.

FIRE AND EXPLOSION HAZARD: Combustible Liquid. Can form explosive mixtures at temperatures at or above the flashpoint. Can burn in fire, releasing irritating and toxic gases due to thermal decomposition or combustion.

EXTINGUISHING MEDIA: Use foam, dry chemical, carbon dioxide, or water spray when fighting fires involving this material.

FIRE FIGHTING INSTRUCTIONS: Evacuate nonessential persons from area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Explosive vapor could form from ruptured containers. Dike and collect water used to fight fire to prevent environmental damage due to run off. Foam or dry chemical fire extinguishing systems are preferred to prevent environmental damage from excessive water run off.

FIRE FIGHTING EQUIPMENT: Full fire fighting turn-out gear (Bunker gear) including self-contained breathing equipment.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of nitrogen and sulfur. May produce toxic compounds of chlorine.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Clean up spills immediately, observing precautions in Section 8 of this document. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

SMALL SPILL: Absorb small spills on sand, vermiculite or other inert absorbent. Place contaminated material in appropriate container for disposal.

LARGE SPILL: Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify, and scrape up for disposal. After removal, clean contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container.

SECTION 7 - HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN!

HANDLING: Use only in a well-ventilated area. Do not reuse this container.

STORAGE: Keep container closed when not in use. Keep away from food, feed and drinking water. Store in a well ventilated, dry place away from heat and other sources of ignition.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS (8 HOUR TWA): (Refer to Section 3)

ENGINEERING CONTROLS: Proper ventilation is required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION - Safety glasses or goggles.

CLOTHING - Long-sleeved shirt and long pants, Shoes plus socks,

GLOVES - Chemical-resistant gloves such as barrier laminate or viton.

RESPIRATOR - When handling in enclosed areas where exposure limits may be exceeded, use a respirator approved for pesticides.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION: Dark amber liquid
ODOR: Mild aromatic
SPECIFIC GRAVITY: 0.93 – 0.98 g/mL @ 20 C (7.80 – 8.20 lb/gl)*
pH: 4.3
VAPOR PRESSURE: Unknown
VAPOR DENSITY: Unknown
WATER SOLUBILITY: Emulsifies in water.

*Listed density is an approximate value and does not necessarily represent that of a specific batch.

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Unstable when exposed to extremes of pH, elevated temperatures, oxygen or u.v. light.
CONDITIONS TO AVOID: Avoid temperatures above 90°F (35°C), exposure to air direct sunlight. Keep containers sealed to avoid exposure to air.
INCOMPATIBILITY WITH OTHER MATERIALS: Oxidizing materials.
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of hydrogen, nitrogen and sulfur.
HAZARDOUS POLYMERIZATION: Product will not undergo polymerization.

SECTION 11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: (technical)

Oral LD ₅₀ (rat)	- 5,000 mg/Kg (female)
Dermal LD ₅₀ (rat)	- > 5,000 mg/Kg
Inhalation LC ₅₀ (rat)	- > 2.0 mg/L (4 hour)
Eye Irritation (rabbit)	- Moderate
Skin Irritation (rabbit)	- Moderate
Sensitization (guinea pig)	- Non-sensitizer

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Exposure to vapors may increase tendency to respiratory or bronchial infections.

CARCINOGEN STATUS:

OSHA -	Not listed.
NTP -	Not listed.
IARC -	Not listed.

MUTAGENIC DATA: No evidence of mutagenic effects during *in vivo* or *in vitro* studies.

ADDITIONAL DATA: Not known to exhibit reproductive effects. Some teratogenic (birth defect) effects were noted in rats tested at elevated doses of 700 mg/Kg/day.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL SUMMARY: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when disposing of equipment washwater or rinsate.

FISH TOXICITY: (Technical)

96 hour LC₅₀, Rainbow trout – 65 mg/L
 96 hour LC₅₀, Bluegill - 120 mg/L

AVIAN TOXICITY: (Technical)

Dietary LC₅₀, Bobwhite quail - >6,000 ppm
 Dietary LC₅₀, Mallard duck - >6,000 ppm

BEE TOXICITY: Contact LD₅₀ - >100 ug/bee

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE: Pesticide wastes are acutely hazardous. Dispose of in accordance with applicable Federal, state and local laws and regulations.

CONTAINER: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

SECTION 14 - TRANSPORT INFORMATION

DOT SHIPPING DESCRIPTION:

Containers ≤ 119 gallons –	Not regulated
Containers > 119 gallons –	NA1993, Combustible liquid, N.O.S. (contains petroleum distillates, naphthalene), PG III, RQ (naphthalene)

DOT HAZARD CLASS:	Combustible liquid
IDENTIFICATION NUMBER:	NA1993
DOT PACKING GROUP:	PG III
DOT PRIMARY/SECONDARY LABEL:	N/A
DOT PRIMARY/SECONDARY PLACARD:	Combustible (> 119 gallons)
DOT EMERGENCY RESPONSE GUIDE #:	128

SECTION 15 - REGULATORY INFORMATION

CERCLA REPORTABLE QUANTITY: 100 lb Naphthalene (180 gallons of product)

SARA TITLE III STATUS:
 311/312 Hazard Categories - Immediate, Delayed Health Effects, Fire Hazard
 313 Toxic Chemicals - Naphthalene

CALIFORNIA PROP 65: Not listed

SECTION 16 - OTHER INFORMATION

HMIS HAZARD RATINGS	HEALTH	2
	FLAMMABILITY	2
	PHYSICAL HAZARD	1
4=Severe 3=Serious 2=Moderate 1=Slight 0=Minimal		

DISCLAIMER: The information presented herein is based on available data from reliable sources and is correct to the best of Albaugh's knowledge. Albaugh makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

REVISED DATE: September, 2008
 REVISED FOR: Revise DOT description in Section 14

The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

Agsurf Corporation
Material Safety Data Sheet

Page 1

Agsurf "Ciramet" Herbicide
AGSURF0002 Revised 01-SEP-2008

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"Ciramet" is a trademark of Agsurf.
"Agsurf" is a trademark of Agsurf Corporation.
Grade : 60% FORMULATION

Tradenames and Synonyms

Ciramet
Ciramet herbicide
METSULFURON METHYL

Company Identification

MANUFACTURER/DISTRIBUTOR
Agsurf Corporation
1209 Orange Street
Wilmington, DE 19801

PHONE NUMBERS

Transport Emergency : CHEMTREC 1-800-424-9300
(outside U.S. 703-527-3887)
Medical Emergency : 1-888-261-1410 (outside the U.S.)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
METSULFURON METHYL	74223-64-6	60
Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-Triazin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate		
INERT INGREDIENTS		40

HAZARDS IDENTIFICATION

Emergency Overview

CAUTION! Causes eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist.

(HAZARDS IDENTIFICATION - Continued)

Potential Health Effects

Based on animal data, eye contact with Cirmet may cause eye irritation with tearing, pain or blurred vision.

Based on animal data, repeated dermal contact with the active ingredient may cause skin irritation with itching, burning, redness, swelling or rash.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary.

IF INGESTED: No specific intervention is indicated as the compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-888-261-1410 for emergency medical treatment information.

FIRE FIGHTING MEASURES

Flammable Properties

Not a fire or explosion hazard.

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

(FIRE FIGHTING MEASURES - Continued)

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO₂.

Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material. If product is on fire, wear self-contained breathing apparatus and full protective equipment. Use water spray. Control runoff.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face/eye protection. If dusting occurs, use NIOSH approved respirator protection.

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Follow applicable Federal, State/Provincial and Local laws/regulations.

Spill Clean Up

Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

(HANDLING AND STORAGE - Continued)

Handling (Physical Aspects)

Keep away from heat, sparks and flames.

Storage

Store product in original container only in a cool, dry, well-ventilated place. Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

Personal Protective Equipment

Always follow the label instructions when handling this product.

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.
Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

Coveralls.
Shoes plus socks.

Exposure Guidelines

Applicable Exposure Limits

METSULFURON METHYL

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (Agsurf)	: 10 mg/m ³ , 8 & 12 Hr. TWA

* AEL is Agsurf's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Solubility in Water : Dispersible
Odor : Slight
Form : Solid granule
Color : Light brown
Specific Gravity : 1.47 @ 25C (77F)

Bulk Density (Tap Bulk Density) : 0.64 - 0.74 g/mL

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Decomposition

Decomposition will not occur.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Ciramet

Oral LD50: > 5000 mg/kg in rats
(Very low toxicity)
Skin LD50: > 2000 mg/kg in rabbits
(Slight to moderate toxicity)

Ciramet is a slight eye irritant, but is not a skin irritant or skin sensitizer in animal tests.

Metsulfuron Methyl

Inhalation LC50, 4 hr: > 5.3 mg/L in rats
(Very low toxicity)

Single exposures of animals to Metsulfuron Methyl by inhalation caused body weight loss and other nonspecific effects.

Repeated applications of Metsulfuron Methyl to the skin of rabbits caused skin irritation but no other changes were observed.

(TOXICOLOGICAL INFORMATION - Continued)

Repeated oral doses of Metsulfuron Methyl produced decreased body weight gain and decreased liver weights when compared to the control group. Long term administration caused body weight loss.

Animal testing indicates that Metsulfuron Methyl does not have carcinogenic, developmental, or reproductive effects.

There is a report indicating that Metsulfuron Methyl produced genetic damage in a mammalian cell culture test; however, other tests with Metsulfuron Methyl in bacterial and mammalian cell cultures and in animals did not produce genetic damage. The weight of evidence suggests that Metsulfuron Methyl does not cause genetic damage.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

METSULFURON METHYL

96 hour LC50 - Rainbow trout: > 150 ppm.

96 hour LC50 - Bluegill sunfish: > 150 ppm.

AVIAN TOXICITY:

METSULFURON METHYL

LD50 - Mallard Duck: > 2510 mg/kg.

LC50 - Bobwhite Quail: > 5620 mg/kg

DISPOSAL CONSIDERATIONS

Waste Disposal

Do not contaminate water supply, food or feed by storage or disposal.

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

(DISPOSAL CONSIDERATIONS - Continued)

Container Disposal

For Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities.

For Fiber Drums with Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

For Bags Containing Water-Soluble Packets: Do not reuse the outer box or the resealable plastic bag. When all water-soluble packets are used, the outer packaging should be clean and may be disposed of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by open burning. If burned, stay out of smoke. If the resealable plastic bag contacts the formulated product in any way, the bag must be triple-rinsed with clean water. Add the rinsate to the spray tank and dispose of the outer wrap as described above.

For Metal Containers (non aerosol): Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

For Paper and Plastic Bags: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

TRANSPORTATION INFORMATION

Shipping Information

DOT : Not Regulated by 49 CFR (DOT)

IMO/IMDG: Not Regulated by IMO/IMDG

IATA : Not regulated by IATA

ADDITIONAL INFORMATION: Although material is not regulated by the DOT/IMO/IATA, it may be transported as a class 9 (UN 3077) under special provision SP146 (DOT), 909 (IMDG) or A97 (IATA). The following description would apply using any one of the aforementioned special provisions:

UN 3077, Environmentally hazardous substances, solid, n.o.s., (Metsulfuron Methyl), 9, PG III

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-435-85588

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

NPCA-HMIS Rating
Health : 1
Flammability : 1
Reactivity : 0

(Continued)

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : Agsurf Corporation
Address : Wilmington, Delaware 19801
: www.agsurf.com

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS

Material Safety Data Sheet

Effective Date: 07-APR-2004
Product: SPRAY INDICATOR

I. IDENTIFICATION

Chemical Name: Acid Blue # 9
Chemical Family: Dyestuffs
Formula: Not applicable, formulated mixture.
Synonyms: None
CAS Number: Not applicable, formulated mixture.
EPA Number: None required

II. PHYSICAL DATA

Boiling Point: 100 Degrees C.
Freezing Point: <33 Degrees F.
Spec Gravity: 1.06 gms/cc
Vapor Pressure: Not determined
Vapor Density: Heavier than air
Solubility: Soluble
Volatiles: Not determined
Evaporation: Slower than Ether
Melting Point: Not applicable
Appearance: Dark blue liquid, no odor.

III. INGREDIENTS

Material	CAS Number	Percent	TLV	Hazard
Proprietary blend of Acid Blue #9 (dyestuff) and inert ingredients.		100.00	N/E	Non-hazardous

IV. FIRE AND EXPLOSION HAZARD

Flash Point: >200 Degrees F.
Autoignition Temp: Not applicable
Flammable Limit: Not applicable
Extinguishing Media: Foam, alcohol fog, carbon dioxide, dry chemical and water fog.
Special Fire Fight Proc: Firefighters should wear butyl rubber boots, gloves, body suit and self-contained breathing apparatus.
Fire and Expl Hazard: Not a fire or explosion hazard when stored under normal conditions. Use water spray to keep fire-exposed containers cool.

Material Safety Data Sheet

Effective Date: 07-APR-2004
Product: SPRAY INDICATOR

V. HEALTH HAZARD

Carcinogen Information: Not a carcinogen.

ACUTE EFFECTS OF OVER EXPOSURE

Swallowing: Practically non-toxic by ingestion. However, ingestion of large amounts may be harmful.
Skin Absorption: Practically non-toxic by skin absorption. Temporary discoloration of the skin may occur.
Inhalation: Prolonged inhalation may lead to respiratory tract irritation.
Skin contact: Prolonged or repeated skin contact may result in mechanical irritation.
Eye Contact: Prolonged or repeated eye contact may result in mechanical irritation.
Chronic Effects: None currently known.
Other Hazard: May provoke asthmatic response in persons with asthma who are sensitive to airway irritants.

EMERGENCY AND FIRST AID PROCEDURES

Swallowing: Dilute with water and induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.
Skin: Remove contaminated clothing. Wash skin thoroughly with soap and water. If irritation develops, consult a physician.
Inhalation: Move to fresh air. If irritation develops, consult a physician.
Eyes: Flush eyes with water for 30 minutes, holding eyelids open. If irritation develops, consult a physician.
Notes to Physician: In the event of an adverse response, treatment should be directed toward control of the symptoms. If contact is made with the spray solution containing pesticides, follow the "Statement of Practical Treatment" on the pesticide label.

VI. REACTIVITY

Stability: Stable
Conditions to Avoid: None currently known.
Polymerization: Will Not Occur

Material Safety Data Sheet

Effective Date: 07-APR-2004
Product: SPRAY INDICATOR

Conditions to Avoid: None currently known.
Incompatibility material: Mineral acids, strong oxidizing agents, high heat sources, sparks and open flames.
Hazardous Combustion: Carbon oxides, nitrous oxides, acetic acid or other toxic compounds under fire conditions.

VII. SPILL OR LEAK PROCEDURES

Spill or Leak Proc: Contain the spill to prevent discharge to surface water or stormwater sewers. Absorb spill and place in suitable drums for disposal. Scrub spill area with detergent and water. Absorb and place in containers with collected material.
Waste Disposal Method: This material must be disposed of according to Federal, State or Local procedures under the Resource Conservation and Recovery Act.

VIII. SPECIAL PROTECTION INFORMATION

Respiration: If vapors or mists are generated, wear NIOSH-approved organic vapor/mist respirator.
Ventilation: Use local exhaust to control vapors/mists when necessary.
Gloves: Rubber gloves
Eyes: Safety goggles
Other: Coveralls, apron or boots as necessary to prevent skin contact. Emergency eyewash should be easily accessible.

IX. SPECIAL PRECAUTIONS

Special precaution: Keep out of reach of children. Do not store with food, feed or other material to be used or consumed by humans or animals. Do not contaminate water supplies, lakes, streams or ponds.
Other precaution: No toxic chemical(s) subject to the reporting requirements of Section 313 of SARA, Title III and of 40 CFR Part 372 are present.

X. SHIPPING INFORMATION

Helena Chemical Company
PH: 901-761-0050
CHEMTREC: 800-424-9300

07-APR-2004 09:21:15
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Material Safety Data Sheet

Effective Date: 07-APR-2004
Product: SPRAY INDICATOR

Shipping name: Not regulated by DOT, IATA or IMDG.
Hazard Class: None
Identification No: None
Labels Required: None required
Placarding: None
Freight Class: Soaps, Dyes, Cleaning Compounds, Liquid, NOIBN
(NMFC Item 149980, Sub 2, Class 55)
Chemical Name Equivalent R.Q.

Not applicable Not applicable

XI. GENERAL PRODUCT INFORMATION

National Fire Protection Association Rating:
(Rating level: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Minimum)

Health: 1 Fire: 1 Reactivity: 0

S.A.R.A. Title III Hazard Classification: (Yes/No)

Immediate (Acute) Health: N Delayed (Chronic) Health: N
Sudden Release of pressure: N Fire: N
Reactive: N

Mail inquiries to: 225 Schilling Blvd., Suite 300 Collierville, TN 38017
Helena Chemical Company believes that the data contained herein is factual.
This data is not to be taken as a warranty or representation of legal
responsibility. It is offered solely for your consideration, investigation
and verification.

Appendix E

Western Refining Outfall 001

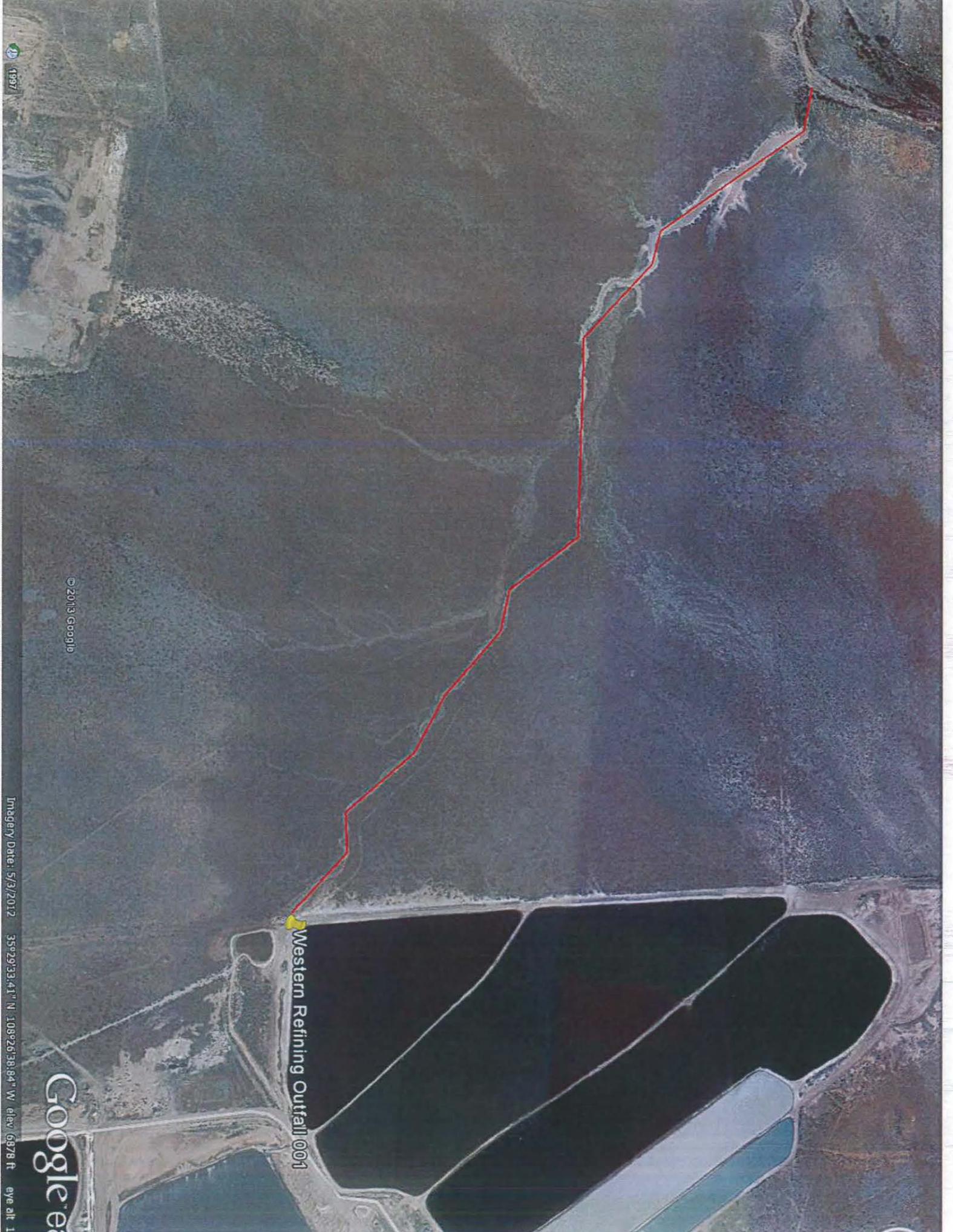
Imagery, USDA Farm Service Agency

Imagery Date: 7/24/2011

35°29'28.97" N 108°26'15.02" W elev. 6987 ft. eye alt. 1

Google





Western Refining Outfall 001

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Imagery Date: 5/3/2012 35°29'33.41" N 108°20'38.84" W elev. 6878 ft eye alt 1

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