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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

March 12, 2014

Mr. Bill McMurtry
Darling International Inc.
251 O'Connor Ridge Blvd
Irving TX 75038

Re: Further Action at the following Site:

- **Site Name:** Darling Delaware Co. Inc. (aka Puget Sound By-Products)
- **Site Address:** 2041 Marc Avenue, Tacoma, Washington
- **Facility/Site No.:** 25455514
- **Cleanup Site No.:** 8475
- **VCP Project No.:** SW1317

Dear Mr. McMurtry:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Darling Delaware Co. Inc. facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Petroleum into the soil and groundwater.
- Carcinogenic polynuclear aromatic hydrocarbons into the soil and groundwater.



Please note the Lincoln Avenue Landfill facility (Facility/Site No. 1240) also affects parcel(s) of real property associated with this Site. This opinion does not apply to any contamination associated with the Lincoln Avenue Landfill facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. *Subsurface Petroleum Hydrocarbon Evaluation*, Rittenhouse-Zeman & Associates, Inc., September 27, 1989.
2. *Underground Storage Tank Closure Review*, Whitman Environmental Services, April 17, 1998.
3. *Site Investigation Work Plan*, MFG, Inc., January 2, 2002.
4. *Site Investigation Report*, MFG, Inc., June 3, 2002.
5. *2002 Year-End Groundwater Monitoring Report*, MFG, Inc., April 2, 2003.
6. *2003-2004 Monitoring Report; Darling International, Inc. LUSTs Site; Parcel No.: 0320031019*, Maxim Technologies Inc., July 28, 2004.

These documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You may make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action

The Site is located on the Tacoma tide flats in the area east of the Puyallup River, south of Lincoln Avenue (Figure 1) and is utilized as an animal rendering facility. It is located in an area

of heavy industry. The facilities were constructed over part of the former Old Tacoma Landfill (also known as the Lincoln Avenue Landfill), a municipal dump site until the 1960s.

Three buildings are located on the Site: an office, a rendering plant, and a work shop. The Site is mostly paved with the exception of unpaved portions of the south area where three wastewater treatment lagoons and a clarifier were previously located.

The Site and greater surrounding area is located in a heavy industrial area in Tacoma, Washington (Figure 1). The Site is located approximately 0.4 miles northeast of the Puyallup River. Commencement Bay lies over 1.5 miles north-northwest of the Site. The majority of the Site is paved, including the area under investigation. Investigations at nearby sites within the Old Tacoma Tidelands Landfill have identified two groundwater zones. These same two groundwater zones, separated by a silt layer, have also been identified at the Site. The silt layer consists of dredged material from the Tacoma tide flats. This silt layer was encountered during the February 2002 Site investigation at approximately 13 to 15 feet below ground surface (bgs). Drilling did not extend deeper than the silt layer during the 2002 investigation and the upper groundwater zone is being monitored as part of this investigation.

Two 10,000-gallon underground storage tanks (USTs) were located on the east side of the shop at the Site (Figure 2). One tank contained Bunker C heating oil for use in the plant's boiler. The other tank held diesel for use in the company's trucks. The tanks were removed in May 1989 by Don Golden, Inc. Contaminated soil removed during this work was stockpiled on plastic sheeting. Approximately 112 cubic yards of contaminated soil was taken to Fife Sand & Gravel for treatment. A vacuum truck removed 1,000 gallons of water from the excavation. Soil and groundwater samples confirmed that TPH was found above cleanup levels. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were either not found or were below cleanup levels. A building is now located in the area of the former USTs.

Monitoring wells MW-1, MW-2, and MW-3 were installed previously to monitor groundwater quality in the lower water unit down gradient of the three wastewater treatment lagoons and one clarifier. These wells were abandoned in 1997.

A Site assessment was done in September 1989. Three borings installed during this work were completed as monitoring wells MW-4, MW-5, and MW-6 in the upper groundwater unit (Figure 2). Total depth of the borings ranged from 14 feet to 16.5 feet bgs. These wells were sampled from 1989 through 1993. Concentrations of TPH in MW-5 ranged up to 44,000 micrograms per liter.

During the February 2002 Site investigation, fill material and landfill debris were encountered up to 15 feet bgs at the Site during drilling of four boreholes. The boreholes were completed as monitoring wells MFG-1, MFG-2, MFG-3, and MFG-4. The subsurface fill material and landfill debris contained an abundance of wood, sticks, and other fine organic material. Metal, glass, and

wire were also present in the subsurface landfill debris and fill material. Below the fill was a silt layer. The upper groundwater zone at the Site is located within the fill material and landfill debris. Groundwater elevations at the Site during 2002 varied from a high of approximately 4.6 feet bgs to a low of 8.9 feet bgs. The potentiometric surface is relatively flat and the groundwater flow direction varies during the year.

Due to poor recovery, no soil samples were collected from MFG-1. Soil samples were analyzed for Total Petroleum Hydrocarbons in the diesel range (TPH-D), heavy oil range (TPH-O), and mineral oil range, extractable petroleum hydrocarbons (EPH), carcinogenic polynuclear aromatic hydrocarbons (cPAHs), naphthalenes, and BTEX.

Soil analytical results from this investigation found TPH-D up to 650 milligrams per kilogram (mg/kg), TPH-O up to 3,000 mg/kg, and mineral range TPH to 3,200 mg/kg. Samples were also analyzed for EPH, which ranged up to 718 mg/kg. Total cPAHs ranged up to 22.5 mg/kg. No BTEX was found. Figure 2 shows the boring locations and Table 1 lists all the soil results.

Groundwater has been monitored sporadically since 1989. Only the upper zone has been monitored. Results from sampling rounds conducted in 2002, 2003, and 2004 are shown in Table 2.

Based on the review of the above-listed reports, Ecology has the following comments:

1. The lateral and vertical extent of the cPAHs in soil has not been determined. Additional soil sampling is warranted.
2. The groundwater flow direction has been quite variable. More characterization is needed to determine if the direction is truly variable or is caused by other factors. As such, the contamination present in groundwater has not been adequately characterized. More wells may be needed to determine the flow direction and any impacts to groundwater.
3. The most recent groundwater monitoring report (2004) contained TPH calculation spreadsheets for Method C soil direct contact pathway cleanup levels. If Method C is to be used, an environmental covenant will need to be placed on the property deed. Calculations for protection of groundwater were not included.
4. Silica gel cleanup on samples for determining contamination cannot be used unless uncontaminated background samples indicate that naturally occurring organic matter is a significant component of the TPH being detected in soil or groundwater samples. See Section 7.3, Total Petroleum Hydrocarbons (TPH), in the *Guidance for Remediation of Petroleum Contaminated Sites*, Toxics Cleanup Program, Publication No. 10-09-057 at <https://fortress.wa.gov/ecy/publications/summarypages/1009057.html>.

5. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website <http://www.ecy.wa.gov/eim>. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination.** Please be sure to submit the previous data not submitted yet, as well as any future data, in this format. Be advised that Ecology requires up to two weeks to process the data once it is received.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

a. Cleanup levels

MTCA Method A Cleanup Levels for unrestricted land use for soil and groundwater are being used to characterize the Site.

b. Points of compliance

Standard points of compliance are being used for the Site. The point of compliance for protection of groundwater shall be established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for groundwater shall be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA.

Cleanup actions at the Site to date have consisted of limited excavation of contaminated soils found during removal of the USTs. Monitoring of groundwater has been done at the Site.

Contamination remains at the Site in soil and groundwater, and needs to be further characterized prior to selecting a final cleanup action.

4. Cleanup.

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

During removal of the USTs, approximately 112 cubic yards of contaminated soil was removed and taken to Fife Sand and Gravel in Fife, Washington, for treatment.

Groundwater was monitored on an irregular basis from 1989 until 2002. It was then monitored quarterly through 2004.

Contamination remains at the Site in soil and groundwater, and needs to be further characterized prior to selecting a final cleanup action.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

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3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-6263 or e-mail at cjoh461@ecy.wa.gov.

Sincerely,

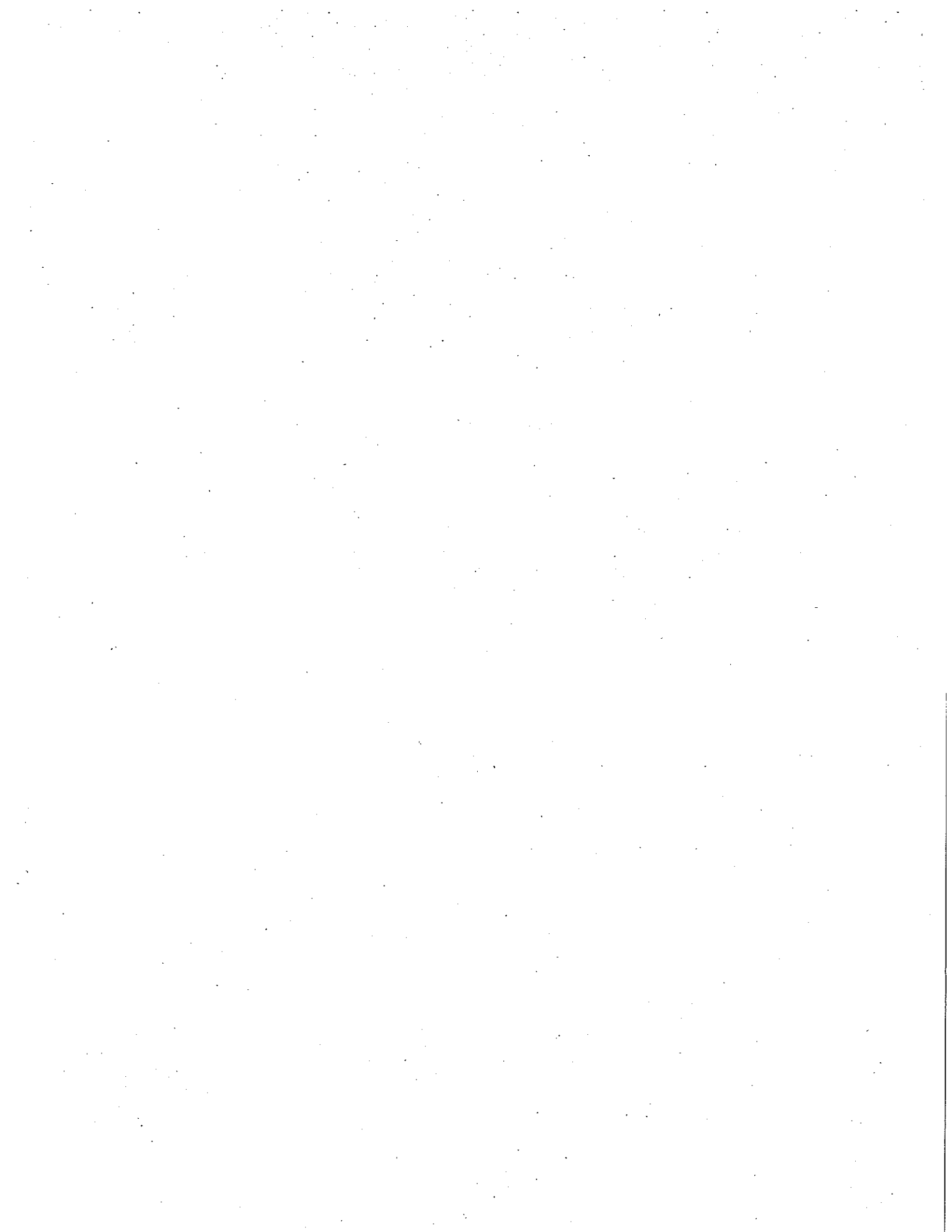


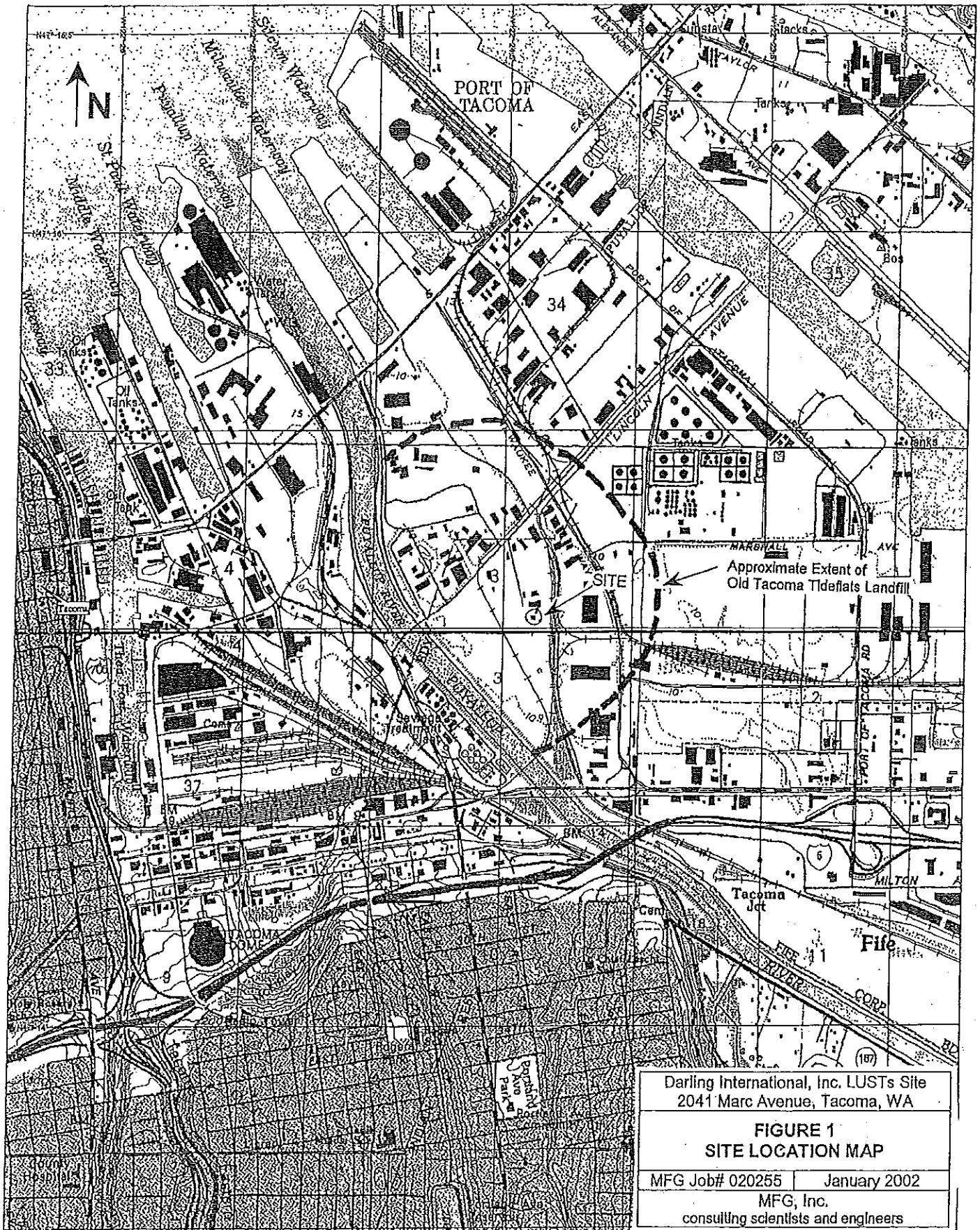
Carol A. Johnston
SWRO Toxics Cleanup Program

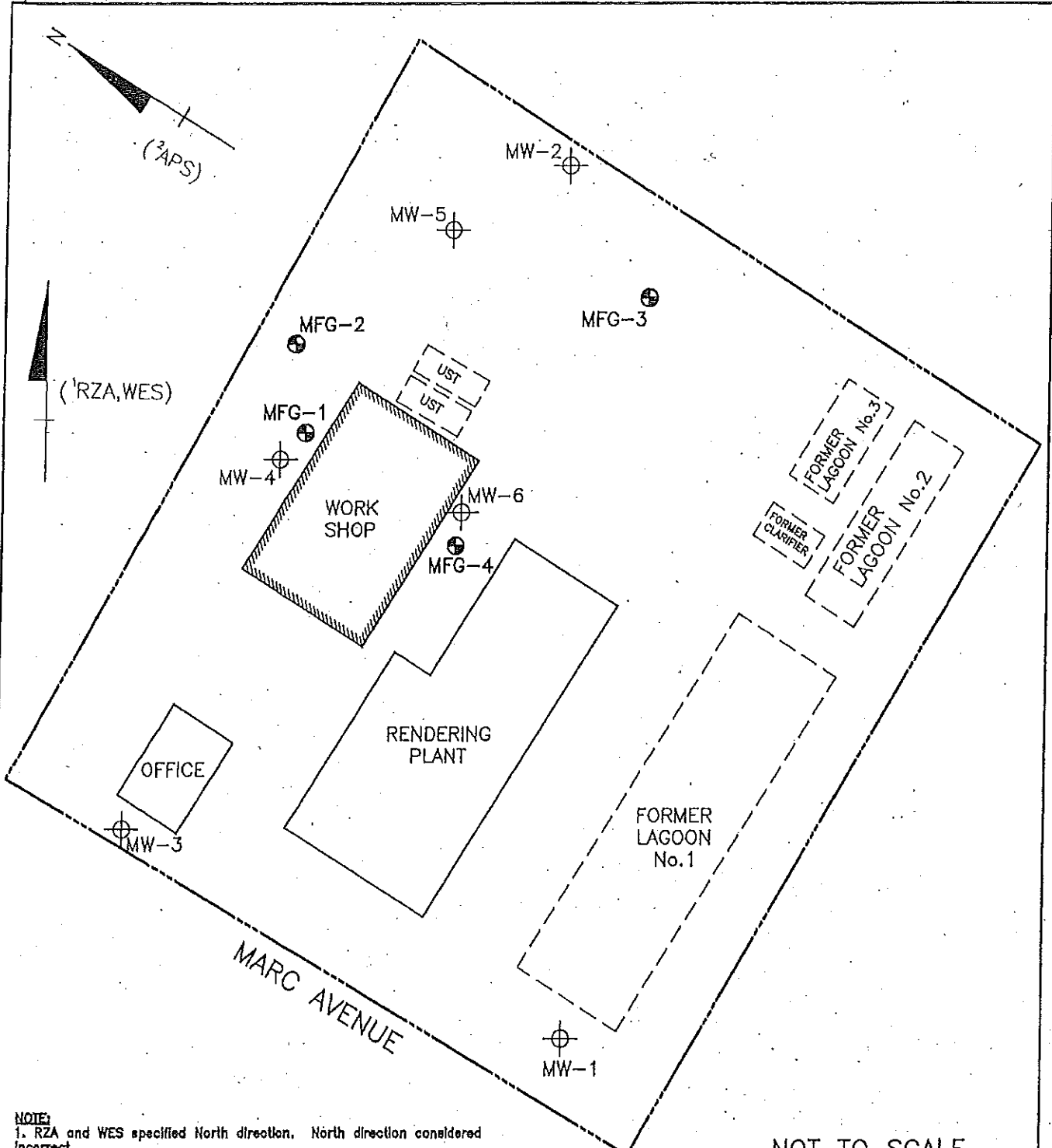
CAJ/ksc: SW131 Site FA Darline Delaware co

Enclosures (2 figures, 2 tables):

cc: Dan Crawford, Port of Tacoma
Natalie Morrow, Tetra Tech Inc.
Rob Olsen, TPCHD
Scott Rose, Ecology
Dolores Mitchell, Ecology (w/o enclosures)










NOTE:

1. RZA and WES specified North direction. North direction considered incorrect.
2. APS Survey and Mapping Surveyed (Issaquah, Washington) North direction. Survey datum: NAVD88 and Washington State Plane Coordinate System - South Zone. APS North direction is considered correct.
3. Structure and well locations are approximate.

LEGEND:

-  NEW MONITORING WELL
-  PREVIOUSLY EXISTING MONITORING WELL
-  FORMER STRUCTURES

NOT TO SCALE

DARLING INTERNATIONAL, INC. LUST [®] SITE 2041 MARC AVENUE, TACOMA, WA		
FIGURE 2		
SITE MAP		
PROJECT: 020255.1	DATE: MARCH 2002	
REV:	BY: ALJ	CHECKED: NM
MFG, Inc. <i>consulting scientists and engineers</i>		

Plot Date: 3/10/02
 Plot Time: 12:07 pm
 Xref: (none)
 User: rhf
 3/15/02 12:07 pm
 TTTT
 020255.1
 3/10/02
 (none)

TABLE I
February 2002 Subsurface Boring Analytical Results
Darling International, Inc.
2041 Marc Avenue, Tacoma, Washington

Boring Location	MTCA Method A Soil Cleanup Levels	MFG-B2	MFG-B3		MFG-B4	
Sample Depth Interval (ft bgs)		10.5-11'	3-3.5'	7-8.5'	3-3.5'	8-8.5'
Date Sample Collected		2/5/2002	2/5/2002	2/5/2002	2/6/2002	2/6/2002
Dry weight (%)		49.4 ³	94.6	49.0 ³	91.9	49.5 ³
Total Petroleum Hydrocarbons (mg/kg)						
Diesel Range	2,000	37	<10	<820	17	650
Heavy Oil Range	2,000	120	<20	3,000 ¹	43	1,300
Mineral Oil Range	4,000	180	<25	3,200	59	2,200
Extractable Petroleum Hydrocarbons (mg/kg)						
C8-C10 Aliphatics	—	<10.1	<5	<10.2	<5	<10.1
C10-C12 Aliphatics	—	<10.1	<5	<10.2	<5	23.2
C12-C16 Aliphatics	—	<10.1	<5	<10.2	<5	26.9
C16-C21 Aliphatics	—	<10.1	<5	22.9	<5	100
C21-C34 Aliphatics	—	40.3	<5	176	8.48	369
C10-C12 Aromatics	—	<10.1	<5	<10.2	<5	<10.1
C12-C16 Aromatics	—	<10.1	<5	<10.2	<5	<10.1
C16-C21 Aromatics	—	<10.1	<5	71.6	<5	39.6
C21-C34 Aromatics	—	<10.1	<5	207	<5	160
Total EPH	—	40.3	<5	477	8.48	718
Carcinogenic Polynuclear Aromatic Hydrocarbons (mg/kg)						
Benzo(a)anthracene	—	<0.020	<0.010	4.2	<0.010	0.27
Benzo(a)pyrene	0.1 (2 ²)	<0.020	<0.010	4.9	<0.010	0.51
Benzo(b)fluoranthene	—	<0.020	<0.010	4.4	0.01	0.64
Benzo(k)fluoranthene	—	<0.020	<0.010	1.3	<0.010	0.18
Chrysene	—	<0.020	<0.010	4.4	<0.010	0.34
Dibenz(a,h)anthracene	—	<0.020	<0.010	0.56	<0.010	<0.020
Indeno(1,2,3-cd)pyrene	—	<0.020	<0.010	2.7	<0.010	0.39
Total Carcinogenic PAHs	0.1 (2 ²)	NA	NA	22.5 ¹	0.01	2.3 ¹
Naphthalenes (mg/kg)						
1-Methylnaphthalene	—	<0.020	<0.010	0.17	<0.010	0.084
2-Methylnaphthalene	—	<0.020	<0.010	0.23	<0.010	0.08
Naphthalene	—	<0.020	<0.010	0.30	<0.010	0.047
Total Naphthalenes	5	NA	NA	0.70	NA	0.21
BTEX (mg/kg)						
Benzene	0.03	<0.0607	<0.0300	<0.0612	<0.0300	<0.0606
Toluene	7	<0.101	<0.0500	<0.102	<0.0500	<0.101
Ethylbenzene	6	<0.101	<0.0500	<0.102	<0.0500	<0.101
Xylenes (total)	9	<0.202	<0.100	<0.204	<0.100	<0.202

bgs = below ground surface

NA = Not Applicable.

Bold = Result is above method detection limit but not above MTCA Method A Soil Cleanup Levels

Bold¹ = Result is above MTCA Method A Soil Cleanup Level for unrestricted land use and industrial properties.

² MTCA Method A Soil Cleanup Level for Industrial Properties

³ Low percent dry weight (high moisture content) may affect analytical results.

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
 Darling International, Inc.
 2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTC A Method A Groundwater Cleanup Levels	MFG-1							
		2/13/2002	6/18/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/9/2004
Water Table Elevation (ft amsl)		10.97	9.18	7.94	8.81	8.00	10.62	10.77	9.21
Field Parameters									
Temperature (°C)	—	12.8	18.7	18.4	16.4	16.9	15.3	14.2	17.7
pH (standard units)	—	6.1	6.0	5.9	5.9	6.7	6.7	6.7	7.4
Specific Conductivity (uS)	—	1,043	1,311	1,133	1,081	1,830	1,284	787	761
Oxidation-Reduction Potential (mV)	—	-322	-87	-87	-81	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	3,100	4,160	3,130	1,350	2,870	1,350	3,120	1,270
Heavy Oil Range	500	730	763	612	514	<500	<0.500	668	<500
Mineral Oil Range	500	3,300	2,390	1,970	849	2,300	978	2,100	852
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics	—	128	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics	—	<100	<100	<50	<50	63.3	<50	<50	<50
C12-C16 Aromatics	—	<100	<100	<50	82.1	<50	<50	<50	58.6
C16-C21 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<50
Total EPH	—	128	NA	NA	82.1	63.3	NA	NA	58.6
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(b)fluoranthene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(a,h)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Indeno(1,2,3-cd)pyrene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	1.0	2.6	1.08	0.738	3.04	0.343	0.904	<0.100
2-Methylnaphthalene	—	<0.10	0.418	<0.10	<0.10	0.170	<0.100	<0.100	<0.100
Naphthalene	—	<0.10	0.277	<0.10	<0.10	0.321	<0.100	<0.100	<0.100
Total Naphthalenes	160	1.0	3.19	1.08	0.738	3.53	0.343	0.904	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	<0.5	<0.5	<0.500	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.500	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	<1.00	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	1.08

bgs = below ground surface
 Bold=At or Above MTC A Method A Groundwater Cleanup Level
 < =analyte was not detected at or above the method reporting limit
 NM = Not Measured
 NA = Not Applicable
 — Not Analyzed
 2003-2004 PAHs results are for dissolved PAHs

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
 Darling International, Inc.
 2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTOA Method A Groundwater Cleanup Levels	MFG-2							
		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Date Sample Collected									
Water Table Elevation (ft amsl)		10.98	9.17	7.94	8.80	7.99	10.50	10.74	9.17
Field Parameters									
Temperature (°C)	---	13.5	19.8	21.6	18.2	20.0	16.5	13.3	20.3
pH (standard units)	---	6.2	6.1	5.9	6.0	6.5	6.6	6.7	7.5
Specific Conductivity (uS)	---	992	1,181	982	1,111	1,693	1,434	815	1,200
Oxidation-Reduction Potential (mV)	---	-331	-93	-98	-96	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	2,300	2,920	1,710	1,630	2,050	1,430	2,000	837
Heavy Oil Range	500	<500	992	634	620	1,110	897	607	<500
Mineral Oil Range	500	2,500	1,750	1,120	1,160	1,790	1,130	1,390	615
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	---	---	---	---	<250	<250	<250	<250
Heavy Oil Range	500	---	---	---	---	<500	<500	<500	<500
Mineral Oil Range	500	---	---	---	---	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C18-C21 Aliphatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aromatics	---	<100	<100	<50	79.9	<50	<50	<50	<50
C16-C21 Aromatics	---	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aromatics	---	<100	<100	<50	<50	<50	<50	<50	<50
Total EPH	---	NA	NA	<50	79.9	NA	NA	NA	NA
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	---	<0.100	<0.100	0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(b)fluoranthene	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(a,h)anthracene	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Indeno(1,2,3-cd)pyrene	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.100	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	---	0.330	0.218	0.120	<0.10	<0.10	<0.100	<0.100	<0.100
2-Methylnaphthalene	---	0.21	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Naphthalene	---	<0.10	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Total Naphthalenes	160	0.54	0.218	0.12	NA	NA	NA	NA	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	<0.5	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	<1.00	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

bgs = below ground surface
 Bold=At or Above MTOA Method A Groundwater Cleanup Level
 < = analyte was not detected at or above the method reporting limit
 NM = Not Measured
 NA = Not Applicable
 --- Not Analyzed
 2003-2004 PAHs results are for dissolved PAHs

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
 Darling International, Inc.
 2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-3							
		2/13/2002	8/19/2002	9/26/2002	12/19/2002	8/3/2003	12/9/2003	3/4/2004	6/9/2004
Water Table Elevation (ft amsl)		10.88	9.19	7.99	6.81	8.01	10.64	10.79	9.03
Field Parameters									
Temperature (°C)	--	13.7	23.5	20.8	15.3	20.2	16.0	12.7	19.9
pH (standard units)	--	6.8	6.4	6.1	6.2	6.7	6.8	6.9	7.5
Specific Conductivity (uS)	--	689	878	777	769	1,184	1,312	1,038	1,260
Oxidation-Reduction Potential (mV)	--	-363	-169	-122	-113	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	6,100	1,760	1,270	1,670	1,090	1,290	1,160	1,090
Heavy Oil Range	500	1,100	761	636	836	<500	1,040	562	<500
Mineral Oil Range	500	7,300	1,160	904	1,280	978	1,080	834	859
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	--	--	--	--	<250	<250	<250	<250
Heavy Oil Range	500	--	--	--	--	<500	<500	<500	<500
Mineral Oil Range	500	--	--	--	--	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aliphatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aliphatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aliphatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aliphatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C10-C12 Aromatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C12-C16 Aromatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C16-C21 Aromatics	--	<100	<100	<50	<50	<50	<50	<50	<50
C21-C34 Aromatics	--	<100	<100	<50	<50	<50	<50	<50	<50
Total EPH	--	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	--	<0.200	<0.100	0.182	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.200	<0.100	0.182	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(b)fluoranthene	--	<0.200	<0.100	0.121	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene	--	<0.200	<0.100	0.162	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	--	<0.200	<0.100	0.162	<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(a,h)anthracene	--	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Indeno(1,2,3-cd)pyrene	--	<0.200	<0.100	0.101	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.910	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	--	0.39	0.24	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
2-Methylnaphthalene	--	<0.20	0.12	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100
Naphthalene	--	<0.20	<0.10	0.303	<0.10	<0.10	<0.100	<0.100	<0.100
Total Naphthalenes	160	0.39	0.36	0.303	NA	NA	NA	NA	NA
BTEX (ug/L)									
Benzene	5	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	0.613	<0.5	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	1.08	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

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TABLE 2
GROUNDWATER ANALYTICAL RESULTS
 Darling International, Inc.
 2041 Marc Avenue, Tacoma, Washington

Monitoring Well	MTCA Method A Groundwater Cleanup Levels	MFG-4							
		2/13/2002	6/19/2002	9/26/2002	12/19/2002	9/3/2003	12/9/2003	3/4/2004	6/8/2004
Water Table Elevation (ft amsl)		10.97	9.18	7.96	8.81	8.00	10.51	10.76	9.21
Field Parameters									
Temperature (°C)	—	15.5	23.9	21.2	16.8	19.7	15.5	13.1	18.1
pH (standard units)	—	6.2	6.1	5.9	6.0	6.7	6.5	6.8	7.8
Specific Conductivity (uS)	—	1,028	1,362	1,235	1,182	2,120	1,635	1,679	2,080
Oxidation-Reduction Potential (mV)	—	-345	-115	-83	-94	NM	NM	NM	NM
Total Petroleum Hydrocarbons (ug/L) without Acid/Silica Gel Clean-up									
Diesel Range	500	4,700	4,770	4,480	3,450	3,770	2,220	3,130	1,170
Heavy Oil Range	500	1,000	1,590	1,420	1,180	1,720	1,040	747	<500
Mineral Oil Range	500	5,100	2,880	2,970	2,450	3,260	1,880	2,100	789
Total Petroleum Hydrocarbons (ug/L) with Acid/Silica Gel Clean-up									
Diesel Range	500	—	—	—	—	<250	<250	<250	<250
Heavy Oil Range	500	—	—	—	—	<500	<500	<500	<500
Mineral Oil Range	500	—	—	—	—	<500	<500	<500	<500
Extractable Petroleum Hydrocarbons (ug/L)									
C8-C10 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C10-C12 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C12-C16 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C16-C21 Aliphatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C21-C34 Aliphatics	—	148	<100	95.9	91.4	<50	<50	<50	<59.5
C10-C12 Aromatics	—	<100	<100	<50	60.6	<50	<50	<50	<59.5
C12-C16 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C16-C21 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
C21-C34 Aromatics	—	<100	<100	<50	<50	<50	<50	<50	<59.5
Total EPH	—	148	NA	NA	142	NA	NA	NA	NA
Carcinogenic Polynuclear Aromatic Hydrocarbons (ug/L)									
Benzo(a)anthracene	—	<0.100	<0.100	0.139	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(a)pyrene	0.1	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(b)fluoranthene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Benzo(k)fluoranthene	—	<0.100	<0.100	0.119	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Dibenz(a,h)anthracene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Indeno(1,2,3-cd)pyrene	—	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Total Carcinogenic PAHs	0.1	NA	NA	0.258	NA	NA	NA	NA	NA
Naphthalenes (ug/L)									
1-Methylnaphthalene	—	2.5	3.27	0.97	1.47	4.23	0.712	1.96	<0.100
2-Methylnaphthalene	—	0.45	0.554	0.158	0.121	0.212	0.481	<0.100	0.254
Naphthalene	—	0.41	0.535	<0.100	0.222	0.192	0.173	<0.100	<0.100
Total Naphthalenes	160	1.6	4.36	1.13	1.81	4.63	1.37	1.36	0.254
BTEX (ug/L)									
Benzene	5	1.7	2.24	0.598	0.830	<0.500	<0.500	<0.500	<0.500
Toluene	1,000	0.648	0.504	<0.5	<2.00	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	700	<0.5	<0.5	<0.5	<1.00	<0.500	<0.500	<0.500	<0.500
Xylenes (total)	1,000	1.38	<1.00	<1.00	<1.50	<1.00	<1.00	<1.00	<1.00

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