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Spill Report Form

Person Reporting Leak:	Spill Date (mo/day/yr) & Time:	Current Weather Conditions:
Approx. Quantity Released:	Source of Release (From Where):	Leak Repaired? And by who? ☐ Yes ☐ No Name:
Turbine Number:	SDS Name of Release Type:	
Area of Impact ☐ Tower ☐ Blades ☐ Foundation ☐ Ground inside area of disturbance ☐ Ground outside area of disturbance ☐ Other: _____	Habitat Affected ☐ Burrowing Owl ☐ Flat-Tailed Horned Lizard ☐ Peninsula Big Horn Sheep ☐ None ☐ Other: _____	Type of Release: ☐ Hydraulic Fluid ☐ Gearbox ☐ Antifreeze ☐ Fuel ☐ Other: _____
Describe the circumstances leading to spill discovery.		
List immediate actions taken to stop / control / contain the spill and describe the results. <i>(calls made, equipment used)</i>		
Spill area diagram: Include scale, north arrow, and nearby buildings/ towers for reference. Indicate the closest down-gradient catch basin and its distance from spill. Attach pictures.		

Reported by (Print Name):

Company Name:

Sign:

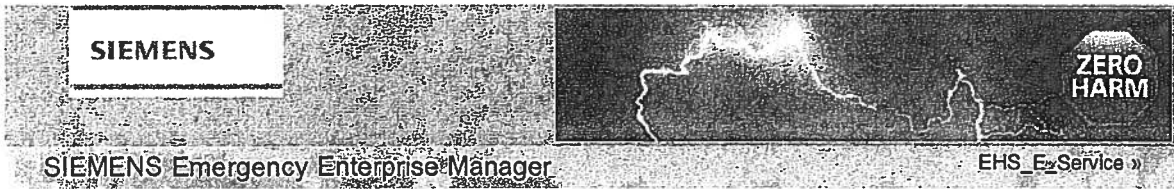
Date:

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Date of Leak/Spill	Turbine	Equipment	Estimated Volume Released to Ground	Description
2/12/2013	OC-030	Turbine	2 gallons	Most of the hydraulic leak was contained within the hub, and the source of the leak was identified and repaired. There was a small amount of fluid that escaped the hub and made it to the ground (approximately 2 gallons) and all of the hydraulic fluid was within the crane pad or near the crane pad in the reclaimed area. Soil was contained in drum and stored in shed.
2/13/2013	OC-164	Turbine	No Data (~1.2 gallons)	The leak was isolated in a connection in the hydraulic system in the hub which was fixed and the hub cleaned. A small amount of hydraulic fluid reached the ground. The oil spots, typically less than a quarter size, were all within the disturbed area around the turbine and the majority within 30 feet of the tower.
2/21/2013	OC-118	Buildozer	No Data (~1.2 gallons)	During backfill of turbine 118, a dozer tipped over. Driver was not hurt and there was a minor hydraulic spill that was quickly contained and soil contained during cleanup. Pyramid is subcontractor doing this.
3/2/2013	OC-091	Turbine	1 gallon	Most of the spilled fluid was contained within the hub, but approximately 2-3 liters made it to the ground.
3/19/2013	OC-091	Turbine	1 gallon	Approximately 4 liters made contact to the ground. Crews repaired the leak and cleaned up the hub, and collected the soil at the crane pad. They will continue inspecting the hub each of the next few days to ensure complete fix.
3/19/2013	OC-161	Turbine	2 gallons	Winds dispersed small quantity of oil, less than 2 gallons, across a relatively wide area of soil with each impact limited to a small spot. Promptly addressed and excavated under BLM oversight.
3/23/2013	OC-020	Crane	1 gallon	We had a minor spill of hydraulic fluid from one of the cranes while the main crane was being constructed at OC-020. The amount of fluid spilled was no more than 3 to 4 quarts of hydraulic oil, and it was cleaned up promptly and contained for off-site disposal.
4/4/2013	OC-080	Turbine	1 gallon	The troubleshooting team addressed a leak contained within the hub, with approximately four quarts reaching the ground. Impacted soil was promptly addressed and contained.
5/17/2013	OC-167	Turbine	No Data (~1.2 gallons)	Hydraulic fluid has leaked from a hose connecting to one of the accumulators in the hub. Limited spotting observed on the ground at the base of the tower.
7/9/2013	OC-124	Turbine	4.5 gallons	Hydraulic leak was contained within hub, with approximately four gallons reaching the ground at the crane pad with limited impacts to soil. Soil was promptly addressed and contained.
7/9/2013	OC-161	Turbine	1.5 gallons	Small leak of approximately 1.5 gallons of oil was observed on the ground. Tower inspection was scheduled promptly and impacted soil was contained for disposal.
7/10/2013	OC-091	Turbine	2 gallons	Winds dispersed a small quantity of oil (less than 2 gallons) across a relatively wide area of soil. Individual impacts consisted of small droplets of oil. The release was promptly addressed through excavation and offsite disposal of the oil-impacted soil, under the oversight of the United States Bureau of Land Management.
7/13/2013	OC-128	Turbine	No Data (~1.2 gallons)	Blade A pitch cylinder pressure hose had a loose connection at the distribution block. The leak was contained within the hub. Light spotting was observed on the base of the tower.
7/26/2013	OC-118	Turbine	No Data (~1.2 gallons)	Small release of approximately 1 liter of oil, reached the ground. Inspection identified damaged o-rings as the cause and replaced them to address the leak. Impacted soil was contained for disposal.
8/2/2013	OC-168	Turbine	25 gallons	Approximately 0.5 liters of oil were released to the ground as a result of a hydraulic oil leak within the hub. The O-ring was replaced and the impacted soil was contained for off-site disposal.
8/27/2013	OC-049	Turbine	1 gallon	Inspection identified the source of a hydraulic leak as the casing of the accumulator within the hub. Very light spotting of oil was discovered on ground at immediate base of tower, which was properly addressed (via excavation and off-site disposal of impacted soil).
8/28/2013	OC-049	Turbine	1 gallon	Follow-up inspection identified additional leaks at the casing within the hub. Very light spotting of oil was discovered on ground at the immediate base of tower. The leak properly addressed (via excavation and off-site disposal of impacted soil).
9/16/2013	OC-118	Turbine	.3 gallons	A number of very small drops of hydraulic oil were identified on the ground, primarily near the tower base and downwind. Only approximately 3/8 of a gallon of total fluid was identified, removed and contained.
10/7/2013	OC-025	Turbine	25 gallons	Routine inspection identified a small release to ground resulting from a leak contained within the hub. A small volume of impacted soil was contained and removed for off-site disposal.
10/31/2013	OC-011	Turbine	2 gallons	Inspection crew identified hydraulic fluid drops on the ground. Ground crew promptly addressed the clean-up, contained the impacted soil and removed it for off-site disposal. Follow-up inspections ensured that no additional releases occurred and that clean-up was complete.
11/10/2013	OC-025	Turbine	1 gallon	A limited release of less than one gallon of hydraulic fluid was observed on the ground. The source was identified as a leaking hose in the hub. Impacted soil was properly and promptly addressed (via excavation and off-site disposal of impacted soil).
12/3/2013	OC-025	Turbine	.5 gallons	A number of very small drops of hydraulic oil were identified on the ground, primarily near the tower base and downwind. Only approximately 3/8 of a gallon of total fluid identified, removed and contained.
1/24/2014	OC-172	Turbine	25 gallons	Inspection discovered a small volume of gear oil in small drops near the base of the tower. The gear oil pump was repaired to solve leak. Impacted soil was properly addressed (via excavation and off-site disposal of impacted soil).
1/24/2014	OC-025	Turbine	25 gallons	Inspection crew identified hydraulic fluid drops on the ground. Initial inspection indicated a limited hub release, which Siemens repaired. Ground crews promptly addressed all impacted soil (via excavation and off-site disposal of impacted soil).

From: kirma-admin.at@siemens.com
To: Heinrichs, Ted W (E S SR WP AM EHS)
Subject: 47060
Date: Tuesday, December 10, 2013 2:25:53 PM



hub leak

Siemens Emergency Enterprise Manager

Printed from Siemens Emergency Enterprise Manager WF Classification:EHS process (direct responsibility - counted in CHR tool)

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NM: Near Miss and Unsafe Condition

Status	Closed
Running ID	47060
Template ID	607
Version	10
Creation time	08.16.2013 10:46:53
Modification time	09.10.2013 20:58:45
Title of the Event	Hydraulic Leak at OC-168
Description of the event	Leak was discovered at turbine OC-168 during troubleshooting of hydraulic oil level error. Approximately half a liter of oil spilled to the ground. Troubleshooting team found damaged o-rings in the hydraulic lines going from the pitch block to the pitch cylinder. Most of the oil was contained within the hub. O-ring was replaced, spilled oil collected, fluid in the hub was cleaned, and hydraulic station was refilled with approximately 23 liters. Tower cleaning crew went to the tower after the leak and began cleaning operations.
Likelihood (initial)	3 - possible
Severity (initial)	1 - minor
Likelihood (resultant)	3 - possible
Severity (resultant)	1 - minor
Lessons Learned	All pitch cylinder hydraulic systems need to be inspected for bad o-rings and repaired as necessary.

Additional comments

Near miss (NM)

An event, which under slightly different circumstances could have resulted in harm of people or environment.

- ***EHS Significant Observation (High Value) Near Miss is viewed as a precursor to a serious injury or fatality and requires us to do an incident investigation. A workflow will automatically be assigned with tasks.***

Siemens En

1. Reported Event

1.1. Environmental Event

Created on 08.09.2013 15:15:34

Environmental Event

An event of uncontrolled release (escape) of a harmful substance (solid, liquids, gas, excessive noise) into the environment whereby a formal complaint is filed by a third party, or requiring the involvement of a regulatory authority due to the volume or toxicity of the harmful substance released.

Environmental Event report must be submitted within 24 hours of the event

General Information

Title of event	Hydraulic leak at OC-168
Description	Leak was discovered at turbine OC-168 during troubleshooting of hydraulic oil level error. Approximately half a liter of oil spilled to the ground. Troubleshooting team found damaged o-rings in the hydraulic lines going from the pitch block to the pitch cylinder. Most of the oil was contained within the hub. O-ring was replaced, spilled oil collected, fluid in the hub was cleaned, and hydraulic station was refilled with approximately 23 liters. Tower cleaning crew went to the tower after the leak and began cleaning operations.
Immediate actions taken	Inspected hub for source of leak and found failed o-ring at the orange pitch cylinder hose. Cleaned fluid in hub, collected soiled dirt off ground, o-ring replaced and pressure tested. Hydraulic station was refilled with approximately 23 liters to proper levels.
Date & time of event	08.02.2013 05:00:00
Data on Reporter	
First name (Reporter)	Paul
Last name (Reporter)	Aldana-Valdez
Country (Reporter)	USA
Organization (Reporter)	E S
Department (Reporter)	E S SR WP AM US OMA A
Home location (Reporter)	BUY B
Phone (Reporter)	+1 (530) 335-3735

Person	Bynum Fred
Links	SCD, E S SR WP AM EHS Homepage, Reporting a Workplace Incident (Injury, Illness, Near Miss, or Environmental)

Siemens Emergency Enterprise Manager - Workflow: NM: Near Miss and Unsafe Condition » Event: Environmental Event

Printed from Siemens Emergency Enterprise Manager WF Classification: EHS process (direct responsibility - counted in CHR tool)

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Mobile (Reporter)	+1 (530) 238-7201
Email (Reporter)	Paul.aldana-valdez@siemens.com
Date & time of notification	08.09.2013 15:12:00
Data on Organization Affected	
Relation of Involved person	Siemens Energy Service Employee
Subcontractor/Temporary Agency	--no temporary agency involved
Business Unit Involved	E S SR WP-Wind Power
Business Segment Involved	E S SR WP AM-Regional Service Americas

Data on Accident Location

Inside site / outside site	Outside Site - (Project, Construction, Installation)
Siemens Cluster of Incident	09 - North America (NAM)
Country of Incident	United States of America (US)
Location	Houston, TX Gateway
Project Name	Ocotillo
Project Number	
Wind Project name	Ocotillo (CA)
Project Type	SWT-2.3-108
Location of event	
Customer	Pattern
Customer notified?	Yes
Responsible BU/segment	Responsible for Incident investigation and correction
Business unit-responsible to RC and CA	E S SR-Service Renewable
Business Segment responsible for RC and CA	E S SR WP AM-Regional Service Americas
Department responsible for RC and CA	E S SR WP ON-Onshore Sites
Responsible Supervisor/Site Manager	

Siemens Emergency Enterprise Manager - Workflow: NM: Near Miss and Unsafe Condition » Event: Environmental Event

Printed from Siemens Emergency Enterprise Manager WF Classification:EHS process (direct responsibility - counted in CHR tool)

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Please Specify Additional Information

Environmental category	06) Oil pollution
Equipment Involved	Hydraulic system
Was a stop work ordered for Siemens workers?	N/A

Additional Information

Attachment 1 (e.g. correspondence)

Attachment 2 (e.g. photo)

SIEMENS Emergency Enterprise Manager - v1.5.2
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Siemens Energy, Inc.

Site: Ocotillo

Turbine: T091 (2305941)

Customer Report: 60213758

Salesforce WO: WO-172019

Time Started: 3/19/2013 7:30:00 AM

Time Out: 3/19/2013 5:00:00 PM

Order Description:

Troubleshoot hydraulic system due to hydraulic oil level fault. Checked hub, hub had leaked hydraulic fluid. Cleaned fluid, and checked and tightened all hydraulic connections. Cleaned base dirt contamination.

Materials:

Material Number

Quantity

Site: Ocotillo
Work Date: 4-19-13
Empl. Name: Ryan Beres
GID: 3002XDOE Department: SEI
Time Type: Day Shift: S-E-S-8
Tower #: T-1#6 Tower Serial #: 23059472

Non Productive Hours:					
Office			Holiday not worked		
Sick			Floating Holiday		
Vacation			Interim trip		
Travel					

[illegible][illegible][illegible][illegible]

[Signature]

SSS ☐ William (Billy) Leach

William (Billy) Leach
Paul Aldana-Valdez

* Only for statistical purposes

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Stantec Consulting Services Inc.
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

February 4, 2014

Ocotillo Express LLC
1377 West Imperial Highway
Ocotillo, California

RE: Waste Characterization, Oil Impacted Soil

Stantec Consulting Services Inc. (Stantec) has prepared this document expressing our professional opinion as the characterization of one drum of soil impacted with hydraulic oil that resulted from a leak in a wind turbine. The drops of oil were excavated and contained in a single drum for waste characterization.

Three samples were collected from the bottom third, middle third and top third of the drum. The laboratory was directed to composite the samples from each drum into a single sample representing the contents of each drum. Composite 12-12-13-01-01/02/03 represents the soil impacted with hydraulic oil from the wind turbine.

All samples were collected, in pre-cleaned laboratory-provided glass jars, labelled, preserved in an iced-cooler and transported to Advanced Technology Laboratory (ATL) for analysis. ATL is certified by the California Environmental Laboratory Accreditation Program for each the analyses performed.

The samples were analyzed for the following:

- Title 22 metals by EPA method 6010B/7471A
- Polychlorinated biphenyls (PCBs) by EPA method 8082
- Volatile Organic Compounds (VOCs) by EPA method 8260B
- Semi-VOCs by EPA method 8270C
- pH by EPA method 9045C
- Extractable total petroleum hydrocarbons (TPH) by EPA method 8015B

Based on the results the following are noted:

- Title 22 metals were reported at low concentrations consistent with expected soil background
- PCB Aroclors were not reported above laboratory Practical Quantitation Limits (PQLs).
- VOCs were not reported above laboratory PQLs.
- Semi-VOCs were not reported above laboratory PQLs.
- pH was reported at 7.6



Ocotillo Express LLC
February 4, 2014
Page 2

- TPH
 - TPH diesel (DRO) was reported at 150 mg/kg
 - TPH oil (ORO) was reported at 200 mg/kg

Waste Characterization

None of the waste contained free oil and; therefore, does not qualify as used oil (Code of Federal Regulation (CFR) 40 Section 279.10). Consequently, the oil-impacted soil does not qualify as a hazardous waste based on the presence of used oil. Similarly, the oil-impacted soil does not qualify as a listed waste based on the criteria set forth in the California Code of Regulation (CCR) Section 66261.

Laboratory testing was conducted to evaluate whether chemical constituents might be present that would qualify the drummed materials qualify as a hazardous waste based on a characteristic of toxicity. None of the analytes were reported above the thresholds listed in CCR Section 66261.24. Similarly, pH testing indicates that the materials do not qualify as a hazardous waste based on a characteristic of corrosivity (CCR Section 66261.22). In addition, the contained materials are impacted with heavy hydrocarbons with flashpoints greater than 295 degrees Fahrenheit and do not represent a characteristic of ignitability (CCR Section 66261.21).

Based on these findings, Stantec opines that the drummed materials may be transported, disposed or recycled as non-hazardous waste.

Stantec is grateful for the opportunity to serve you. If you have any questions, please contact the undersigned at your convenience.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Kevin Miskin, P.E.

Principal Engineer

Tel: 909.335.6116 ext. 8210

Fax: 909.335.6120

Email: kevin.miskin@stantec.com

Attachments:

ATL Laboratory Reports

Material Safety Data Sheets

ADVANCED TECHNOLOGY
LABORATORIES

December 23, 2013

Kevin Miskin
Stantec
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

ACCREDITED IN ACCORDANCE WITH

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No.: T104704502

Re: ATL Work Order Number : 1304048
Client Reference : Ocotillo Express LLC

Enclosed are the results for sample(s) received on December 19, 2013 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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www.atlglobal.com



Certificate of Analysis

Antec

25864-F Business Center Drive
Redlands, CA 92374

Project Number : Ocotillo Express LLC

Report To : Kevin Miskin

Reported : 12/23/2013

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
COMPOSITE 12-12-13-01-01/02/03	1304048-07	Soil	12/12/13 0:00	12/19/13 9:10
COMPOSITE 12-12-13-T27-02/03/04	1304048-08	Soil	12/12/13 0:00	12/19/13 9:10



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

25864-F Business Center Drive

Report To : Kevin Miskin

Redlands , CA 92374

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Title 22 Metals by ICP-AES EPA 6010B

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Arsenic	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Barium	99	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Beryllium	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Cadmium	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Chromium	6.2	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Cobalt	2.7	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Copper	6.1	2.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Lead	1.1	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Molybdenum	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Nickel	7.6	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Selenium	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Silver	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Thallium	ND	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Vanadium	16	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	
Zinc	29	1.0	NA	1	B3L0420	12/20/2013	12/20/13 16:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B3L0418	12/20/2013	12/20/13 15:51	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	150	10	NA	1	B3L0432	12/20/2013	12/20/13 18:20	
ORO	200	10	NA	1	B3L0432	12/20/2013	12/20/13 18:20	
Surrogate: <i>p</i> -Terphenyl	80.8 %	55 - 153			B3L0432	12/20/2013	12/20/13 18:20	



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

25864-F Business Center Drive

Report To : Kevin Miskin

Redlands , CA 92374

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Polychlorinated Biphenyls by EPA 8082

Analyst: PIL

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1016	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1221	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1232	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1242	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1248	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1254	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1260	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1262	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Aroclor 1268	ND	16	NA	1	B3L0431	12/20/2013	12/20/13 15:15	
Surrogate: Decachlorobiphenyl	84.6 %		16 - 152		B3L0431	12/20/2013	12/20/13 15:15	
Surrogate: Tetrachloro-m-xylene	92.2 %		38 - 131		B3L0431	12/20/2013	12/20/13 15:15	

Volatile Organic Compounds by EPA 8260B

Analyst: TP

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1,1-Trichloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1,2,2-Tetrachloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1,2-Trichloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1-Dichloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1-Dichloroethene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,1-Dichloropropene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2,3-Trichloropropane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2,3-Trichlorobenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2,4-Trichlorobenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2,4-Trimethylbenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2-Dibromo-3-chloropropane	ND	10	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2-Dibromoethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2-Dichlorobenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2-Dichloroethane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,2-Dichloropropane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,3,5-Trimethylbenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,3-Dichlorobenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,3-Dichloropropane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
1,4-Dichlorobenzene	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	
2,2-Dichloropropane	ND	5.0	NA	1	B3L0412	12/20/2013	12/20/13 10:47	



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

25864-F Business Center Drive

Report To : Kevin Miskin

Redlands , CA 92374

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Volatile Organic Compounds by EPA 8260B

Analyst: TP

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Chlorotoluene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
4-Chlorotoluene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
4-Isopropyltoluene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Benzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Bromobenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Bromochloromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Bromodichloromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Bromoform	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Bromomethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Carbon disulfide	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Carbon tetrachloride	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Chlorobenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Chloroethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Chloroform	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Chloromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
cis-1,2-Dichloroethene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
cis-1,3-Dichloropropene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Di-isopropyl ether	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Dibromochloromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Dibromomethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Dichlorodifluoromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Ethyl Acetate	ND	50	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Ethyl Ether	ND	50	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Ethyl tert-butyl ether	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Ethylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Freon-113	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Hexachlorobutadiene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Isopropylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
m,p-Xylene	ND	10	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Methylene chloride	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
MTBE	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
n-Butylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
n-Propylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Naphthalene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Xylene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
sec-Butylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Styrene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

25864-F Business Center Drive

Report To : Kevin Miskin

Redlands , CA 92374

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Volatile Organic Compounds by EPA 8260B

Analyst: TP

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
tert-Amyl methyl ether	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
tert-Butanol	ND	100	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
tert-Butylbenzene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Tetrachloroethene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Toluene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
trans-1,2-Dichloroethene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
trans-1,3-Dichloropropene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Trichloroethene	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Trichlorofluoromethane	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Vinyl acetate	ND	50	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Vinyl chloride	ND	5.0	NA	I	B3L0412	12/20/2013	12/20/13 10:47	
Surrogate: 1,2-Dichloroethane-d4	91.9 %	70 - 130			B3L0412	12/20/2013	12/20/13 10:47	
Surrogate: 4-Bromofluorobenzene	97.7 %	70 - 130			B3L0412	12/20/2013	12/20/13 10:47	
Surrogate: Dibromofluoromethane	93.8 %	70 - 130			B3L0412	12/20/2013	12/20/13 10:47	
Surrogate: Toluene-d8	99.7 %	70 - 130			B3L0412	12/20/2013	12/20/13 10:47	

Semivolatile Organic Compounds by EPA 8270C

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,2,4-Trichlorobenzene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
1,2-Dichlorobenzene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
1,3-Dichlorobenzene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
1,4-Dichlorobenzene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4,5-Trichlorophenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4,6-Trichlorophenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4-Dichlorophenol	ND	1600	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4-Dimethylphenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4-Dinitrophenol	ND	1600	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,4-Dinitrotoluene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2,6-Dinitrotoluene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2-Chloronaphthalene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2-Chlorophenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2-Methylnaphthalene	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
Methylphenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2-Nitroaniline	ND	1600	NA	I	B3L0426	12/20/2013	12/20/13 18:48	
2-Nitrophenol	ND	330	NA	I	B3L0426	12/20/2013	12/20/13 18:48	



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

25864-F Business Center Drive
Redlands , CA 92374

Report To : Kevin Miskin

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Semivolatile Organic Compounds by EPA 8270C

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
3,3'-Dichlorobenzidine	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
3-Nitroaniline	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4,6-Dinitro-2-methylphenol	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Bromophenyl-phenylether	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Chloro-3-methylphenol	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Chloroaniline	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Chlorophenyl-phenylether	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Methylphenol	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Nitroaniline	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
4-Nitrophenol	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Acenaphthene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Acenaphthylene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Anthracene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzidine (M)	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzo(a)anthracene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzo(a)pyrene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzo(b)fluoranthene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzo(g,h,i)perylene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzo(k)fluoranthene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzoic acid	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Benzyl alcohol	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
bis(2-chloroethoxy)methane	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
bis(2-Chloroethyl)ether	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
bis(2-chloroisopropyl)ether	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
bis(2-ethylhexyl)phthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Butylbenzylphthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Chrysene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Di-n-butylphthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Di-n-octylphthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Dibenz(a,h)anthracene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Dibenzofuran	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Diethyl phthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Dimethyl phthalate	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Fluoranthene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Quorene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Hexachlorobenzene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Hexachlorobutadiene	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	



Certificate of Analysis

antec

Project Number : Ocotillo Express LLC

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Redlands , CA 92374

Report To : Kevin Miskin

Reported : 12/23/2013

Client Sample ID COMPOSITE 12-12-13-01-01/02/03

Lab ID: 1304048-07

Semivolatile Organic Compounds by EPA 8270C

Analyst: MFR

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Hexachlorocyclopentadiene	ND	660	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Hexachloroethane	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Indeno(1,2,3-cd)pyrene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Isophorone	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
N-Nitroso-di-n propylamine	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
N-Nitrosodiphenylamine	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Naphthalene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Nitrobenzene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Pentachlorophenol	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Phenanthrene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Phenol	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Pyrene	ND	330	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Pyridine	ND	1600	NA	1	B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 1,2-Dichlorobenzene-d4	75.7 %	48 - 113			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 2,4,6-Tribromophenol	126 %	14 - 162			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 2-Chlorophenol-d4	76.2 %	40 - 117			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 2-Fluorobiphenyl	84.6 %	52 - 126			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 2-Fluorophenol	68.4 %	26 - 124			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: 4-Terphenyl-d14	82.8 %	36 - 163			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: Nitrobenzene-d5	66.9 %	42 - 118			B3L0426	12/20/2013	12/20/13 18:48	
Surrogate: Phenol-d5	69.7 %	29 - 124			B3L0426	12/20/2013	12/20/13 18:48	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	7.6	0.10	NA	1	B3L0428	12/20/2013	12/20/13 14:31	



I



Ocotillo Express LLC
Hazardous Materials Discharge/Spill Response Training

- A. Hazardous Materials On-site
 - 1. Location
 - 2. Quantities
 - 3. Types of hazards (fire, reactive, pressure release, health, etc.)
 - 4. Locations of MSDS, HMBP, and SPCC
- B. Minor Discharges
 - 1. Roles and Responsibilities
 - 2. Reporting/Notification
- C. Contained Spill Clean-up
 - 1. Wind Turbines
 - 2. Pad Mounted Turbine Transformers
 - 3. Substation Transformer
 - 4. Oil Shed Facility
- D. Moderate to Large Discharges
 - 1. Roles and Responsibilities
 - 2. Information
 - a. What type of chemical has been spilled/released.
 - b. The location(s) of the spill/release.
 - c. If the source of the spill/release has been stopped.
 - d. If any injuries or chemical exposure has occurred to personnel.
 - e. Boundaries describing the area of the spill.
 - f. Whether or not the spill is contained.
 - g. Quantity released.
 - h. Environmental Impacts (water bodies, streams, ground, and roadways).
 - 3. Determination as to whether the spill/release is of a reportable quantity
 - a. Federal Requirement
 - b. HMBP/Imperial County CUPA Requirements
 - 4. Emergency Response Procedures
 - a. Containment
 - b. Clean up
 - c. Evacuation
 - d. Notifications to emergency agencies
- E. Emergency Equipment Available for Response
- F. Disposal
- G. Resumption of Operations and Additional Reporting
- H. Emergency Response Contacts
 - 1. Arrangements with Local Emergency Response Agencies
 - 2. Notification Lists
 - 3. Response Contractors

J

CT

KTA Associates, Inc.
800 Fifth Avenue, Suite 4100
Seattle, WA 98104
206.447.1450
www.KTAinc.net

KTA Associates, Inc.

Memo

To: Rene Braud, Pattern Energy
From: Ken Taylor, KTA Associates, Inc.
Date: January 10, 2014
Re: Ocotillo Pad Mounted Non-Hazardous Transformer Oil Release Wholly Contained Within Secondary Containment System.

INTRODUCTION

On December 11, 2013, 25 to 30 gallons of transformer oil leaked from a pad mounted transformer at the Ocotillo Wind Farm ("Ocotillo") into the Sorbweb Plus secondary containment system that surrounds the transformer pad. The transformer oil does not contain polychlorinated biphenyls ("PCBs"), as set forth on the Material Safety Data Sheet included as Attachment 1. The leak was fully contained within the secondary containment system, and in fact did not even reach the impermeable liner underlying the backfill within the secondary containment system. No oil was released to the environment. Further, sampling and analysis of the backfill within the secondary containment system confirmed that the oil-impacted backfill is not considered hazardous waste under the Resource Conservation and Recovery Act ("RCRA").

The Sorbweb Plus secondary containment system surrounds each turbine and building transformer pad at Ocotillo. The secondary containment system occupies approximately 15 feet square around each transformer pad and is approximately two feet deep. The liner is composed of layers of (1) engineered geotextiles, (2) an oil absorbent material and (3) an impermeable liner separating the containment area from the native soil. The containment system includes backfill over the liner, along with fire quenching stone and sand. A detailed description of the Sorbweb Plus system is set forth in Attachment 2 to this memorandum.

INVESTIGATING AND ADDRESSING THE RELEASE

The release to the secondary containment system was identified and eliminated on December 11, 2013. Further investigation on December 12, 2013, confirmed that all of the transformer oil was attenuated by the stone and sand contained within the secondary containment system. No transformer oil reached the liner. As a conservative measure, however, all impacted fill was removed from the secondary containment system, placed in containers and labeled for off-site disposal as "SOIL AND GRAVEL CONTAMINATED WITH OIL – HAZARDOUS WASTE DESIGNATION PENDING ANALYSIS BY WASTE MANAGEMENT VENDOR".

Mr. Ken Taylor, a Senior Environmental Engineer with KTA Associates, Inc., was requested to evaluate the secondary containment system to ensure oil had not reached, and thus had not impacted, the secondary containment liners. Mr. Taylor conducted a visual assessment of the secondary containment liner (which was exposed following the removal of the impacted fill) on December 12, 2013. Mr. Taylor confirmed that the transformer oil had not reached the secondary containment liner. He also confirmed that the secondary containment liner had not been negatively impacted during the removal of the impacted fill. Pictures of the secondary containment liner following removal of the impacted fill are provided in Attachment 3. Based on Mr. Taylor's conclusions, the empty secondary containment was backfilled with clean stone and sand on December 12, 2013. The backfilling was conducted in a manner that ensured the secondary containment liner was not negatively impacted.

Samples of the impacted fill were taken while the material was transferred to the containers. The samples were provided to Advanced Technology Laboratories for analysis. Stantec Consulting Services, Inc., an environmental consulting firm retained by Ocotillo, evaluated the results of the laboratory analysis and concluded that the impacted fill was not a hazardous waste as defined in RCRA, and more specifically 40 CFR 261, as implemented by the U.S. Environmental Protection Agency. The material, simply by the presence of the transformer oil, has been assigned a California Hazardous Waste Code of 352, which correlates to "Other Organic Solids." Ocotillo personnel are currently working with Clean Harbors to arrange for offsite shipment and proper disposal of the non-hazardous impacted fill. The results of the analysis are included in Attachment 4.

CONCLUSION

The release of transformer release was promptly investigated and addressed. Investigations confirmed that the transformer oil released from the transformer was wholly contained within the secondary containment system and never impacted the environment. The backfill within the secondary containment system that was impacted by the release has been removed and labeled for off-site disposal in accordance with all applicable laws.

Based on the foregoing, KTA recommends no further action or investigation regarding the release of transformer oil to the secondary containment system.

Attachment 1

Materials Safety Data Sheet for Hyvolt II

(Oil Used in the Pad Mounted Transfers at the Ocotillo Wind Farm Facility)

HYVOLT II

Date of Preparation: May 4, 2012

Section 1 - Chemical Product and Company Identification

Product Name: Hyvolt II
Chemical Name: Severely Hydrotreated Light Naphthenic Distillate
Chemical Family: Petroleum Distillate
Chemical Formula: Not Applicable
CAS Number: 64742-53-6
Other Designations: Contains Oil
Manufacturer: Ergon Refining, Inc., P.O. Box 309, Vicksburg, MS 39181
Company Contact: Will Poe, Phone (601) 630-8319

EMERGENCY TELEPHONE NUMBERS:

Ergon Refining, Inc. (601) 638-4960 Normal Business Hours
 Chemtrec (800) 424-9300 After Business Hours

Section 2 - Composition / Information on Ingredients

A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C15 through C30 and produces finished oil with a viscosity near 60 SUS @ 100°F (9 cSt @ 40°C).

Ingredient Name	CAS Number	%
Severely Hydrotreated Light Naphthenic Petroleum Oil	64742-53-6	> 99.7
Butylated Hydroxytoluene (BHT) or 2,6-Di- <i>tert</i> -butyl- <i>p</i> -cresol (DBPC)	128-37-0	< 0.3

Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Severely Hydrotreated Light Naphthenic Petroleum Oil	5 mg/m ³ (oil mist)	None estab.	5 mg/m ³ (oil mist)	10 mg/m ³ (oil mist)	none estab.	none estab.	none estab.

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Not Expected to cause a severe emergency hazard.

HMIS
 H 1
 F 1
 R 0
 PPE†
 †Sec. 8

Potential Health Effects

Primary Entry Routes: Skin

Inhalation: Inhalation of vapors or mist may be irritating to respiratory passages. Prolonged exposure may result in dizziness and nausea. Target Organ for mineral oil mist is lungs.

Eye: Eye contact may result in slight irritation and redness.

Skin: Short term contact with skin is unlikely to cause any problems; excessive or prolonged and repeated contact and poor hygiene conditions may result in dryness, dermatitis, erythema, oil acne, cracking and defatting of the skin.

Ingestion: May result in nausea or stomach discomfort.

Carcinogenicity: Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

Meets EU requirement of less than 3% (w/w) DMSO extract for total polycyclic aromatic compound (PAC) using IP 346.

NTP and OSHA do not list this product as a potential carcinogen.

Mutagenicity: This product gives negative mutagenic results from Modified Ames Assay.

Medical Conditions Aggravated by Long-Term Exposure: Personnel with pre-existing skin disorders should avoid contact with this product.

Section 4 - First Aid Measures

Eye Contact: Wash with water. If irritation or redness persists seek medical help.

Skin Contact: Wash thoroughly with soap and water. Remove contaminated clothing. Reuse only after cleaning.

Inhalation: Remove to fresh air. Assist breathing if necessary. Seek medical help.

Aspiration: If there is any suspicion of aspiration into the lungs obtain medical advise.

Ingestion: If swallowed, observe for signs of stomach discomfort or nausea. If symptoms persist, seek medical help. Do not induce vomiting.

Section 5 - Fire-Fighting Measures

Flash Point: > 295°F (> 145 °C)

Flash Point Method: COC

Burning Rate: Not available

Autoignition Temperature: > 600 °F (> 315 °C)

Lower Explosive Level (LEL): Not determined

Upper Explosive Limit (UEL): Not determined

Flammability Classification: OSHA Class III-B Combustible Liquid

Extinguishing Media: Halon, dry chemical, foam, CO2 and water mist or fog. Water may be used to cool below flash point.

Unusual Fire or Explosion Hazards: Do not use forced stream as this could cause fire to spread.

Combustion Products: Fumes, smoke and carbon monoxide.

Fire-Fighting Instructions and Equipment: Use water to cool containers exposed to flames. Do not enter enclosed or a confined workspace without proper protective equipment. Fire fighting personnel should wear respiratory protection (positive pressure if available).

**Section 6 - Accidental Release Measures**

Spill /Leak Procedures: Stop spill at source if possible without risk. Contain spill. Eliminate sources of ignition. Spill area will be slick. Recover all possible material for reclamation. Use non-flammable absorbent material to pick up remainder of spill.

Spill to Navigable Waters: If this material is spilled into navigable waters and creates a visible sheen, it is reportable to the National Response Center.

Section 7 - Handling and Storage

Handling and Storage Precautions: Keep away from flames, sparks or hot surfaces. Never use a torch to cut or weld on or near container. Empty oil containers can contain explosive vapors. NFPA Class IIIB storage. Wash thoroughly after handling.

Work / Hygienic Practices: Wash hands with soap and water before eating, drinking, smoking or use of toilet facilities. Do not use gasoline, solvents, kerosene, or harsh abrasive skin cleaners for washing exposed skin areas. Take a shower after work if general contact occurs. Remove oil-soaked clothing and launder before reuse. Discard contaminated shoes and leather gloves.

Shelf Life: Product should be stored in clean, dry containers at ambient temperatures and it should remain stable with exception of slight color stability loss unless it is contaminated.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Adequate ventilation is required where excessive heating or agitation may occur to maintain concentration below exposure limits.

Eye / Face Protection: Safety glasses or face shield where splashing is possible.

Skin Protection: As needed to prevent repeated skin contact. Solvent resistant gloves should be used if needed.

Respiratory Protection: Not Normally Needed. Respirator should be used in areas where vapor concentrations are excessive due to high temperatures or where oil misting occurs.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear & bright
Color: Water white to pale
Odor: Mild Petroleum Odor
Odor Threshold: Not determined
Vapor Pressure: Not applicable
Vapor Density (Air=1): > 5
Specific Gravity (H₂O=1): 0.88

Water Solubility: Nil
Boiling Point: 500-700°F (260-370°C)
Melting Point: - 65°F (- 55°C)
% Volatile: Nil LVP-VOC
Evaporation Rate: Not available
pH: Not applicable

Section 10 - Stability and Reactivity

Stability: Stable
Polymerization: Polymerization will not occur.
Chemical Incompatibilities: Strong Oxidizers.
Conditions to Avoid (Stability): Sources of ignition.
Hazardous Decomposition Products: Combustion products include carbon dioxide and carbon monoxide.

Section 11 - Toxicological Information

Acute Studies: Tests on similar materials show a low order of acute oral and dermal toxicity.
Eye Effects: Minimal irritation on contact.
Skin Effects: Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.
Acute Oral Effects: Tests on similar materials indicate low order of acute oral toxicity.
Acute Inhalation Effects: Low acute toxicity expected on inhalation.

This product is severely hydrotreated. Severely hydrotreated naphthenic petroleum oils have not been found to be carcinogenic or potential carcinogens.

Section 12 - Ecological Information

Aquatic Release: Advise authorities if product has entered or may enter watercourses or sewer drains.

Section 13 - Disposal Considerations

Follow Federal, State, and Local regulations. Not a RCRA hazardous waste if uncontaminated. If "used", RCRA criteria must be determined. Do not flush to drain / storm sewer. Contract to authorized disposal service. If permitted incineration may be practical. Consider recycling.

Section 14 - Transport Information

Proper Shipping Name: Not regulated by DOT (Contains Oil)
Hazard Class: Not Applicable
DOT ID No.: Not Applicable
DOT Shipping Label: Not regulated by DOT

Section 15 - Regulatory Information**U.S. Federal Regulatory Information:****CERCLA / SARA**

302/303/304 Categories: Extremely Hazardous Substances None

311/312 Categories: Immediate (Acute) Health Effects No

Delayed (Chronic) Health Effects No

Fire Hazard No

Sudden Release of Pressure Hazard No

Reactivity Hazard No

313 Categories: Toxic Chemicals (40 CFR 372) None

Clean Air Act: Hazardous Air Pollutants (HAPS) None

Ozone Depleting Compounds (ODC) None

Clean Water Act: If spilled into navigable waters it is reportable to National Response Center, 800-424-8802

(40 CFR 116; 401.15) Reportable Quantity = Oil Sheen present on navigable water surface

OSHA (29 CFR 1910): This product is not hazardous under Hazard Communication Standard 29 CFR 1910.1200

RCRA (40 CFR 261.33) This product does not meet hazardous waste criteria.

State Regulations:

California Prop 65 No Proposition 65 chemicals exists in this product, no labeling required.

Florida No listed ingredients are present

Massachusetts RTK No listed ingredients are present

Minnesota RTK No listed ingredients are present

New Jersey RTK Lists petroleum oil, but this product does not contain hazardous ingredients.

Pennsylvania RTK Lists petroleum oil, but this product does not contain hazardous ingredients greater than 3%.

Illinois DOL TSL No listed ingredients are present

Other Regulations:

CONEG Metals: Since cadmium, chromium, lead and mercury are not detectable and it does not exceed 100 ppm total in this product, it is compliant with CONEG Metals regulation.

EEC (Europe): This product is not known to be a dangerous good internationally, unlabeled

EPA/TSCA Inventory: The components of this product are listed on the EPA/TSCA inventory of chemicals. CAS No. 64742-53-6

Foreign Inventories: The components of this product are listed under the following foreign inventories:

European Union's EINECS No. 265-156-6

Korea's ECL No. KE-12552

Australia's AICS No. 64742-53-6

Canada's DSL No. 64742-53-6

Philippines' PICCS - on List

Section 16 - Other Information

NFPA Hazard Rating

- Health	1 Slight
- Fire	1 Slight
- Reactivity	0 Least

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Supersedes MSDS Dated:

October 1, 2009	Changed date
January 1, 2007	Changed date
May 9, 2005	Changed date
June 5, 2003	Changed date
March 28, 2001	Added additional regulatory references, color
January 1, 2000	Change from 100% to > 99.7 %, add BHT in Section 2
May 21, 1999	Change date

This MSDS complies with OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200 and conforms to ANSI Z 400.1 16-Section Format.

Disclaimer: Ergon Refining, Inc. believes this information is accurate but not all-inclusive in all circumstances. It is the responsibility of the user to determine suitability of the material for their purposes. No warranty, expressed or implied, is given.