International Power
GDF SUEZ

Hopewell Cogeneration Facility

Identification of Environmental Impacts

In order to maintain an awareness of environmental Impacts, the plant reviews the impacts each year. An impact page is added each time there is some new aspect that may come up in legislation, local notification, state, federal, or within the company.

On the following page there is a blank form followed by the rating tables. The blank page is labeled at the top with the aspect. Then as we move down each area of impact is looked at; Air Quality, Water Quality, etc. Using the tables will result in a score. That score is then placed with all the other impacts to see where this aspect will fit in the overall plant environmental impact.

The procedure can be found in Tab 3 of the EMS manual.

Aspect/Impact/Activity: Example Blank Form **Date:**

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
							0	NO
							0	NO
							0	NO
							0	NO
Water Quality							0	NO
							0	NO
							0	NO
							0	NO
							0	NO
Land Quality							0	NO
							0	NO
							0	NO
							0	NO
							0	NO
Consumption							0	NO
							0	NO
							0	NO
							0	NO
							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 0

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Frequency	Scale
Continuously	10
once per shift	9
once per day	8
Weekly	7
Monthly	6
Quarterly	5
semi-annually	4
Annually	3
once every 1 to 5 years	2
over 5 years	1
Never	0

Severity Scale	Human Impact	Animal / Plant Effect	Public Relations
10	multiple deaths	widespread permanent destruction	plant closure
9	single death	on-site permanent destruction	permanent public disfavor
8	disabling injury	widespread genetic impact	interrupted operations
7	long term health effects	on site genetic impact	loss of historical assets
6	lost time Injury/Illness	wide spread disfigurement	state or national protest
5	restricted duty	on-site disfigurement	city or county protest
4	medical only	wide spread appearance	employee protest
3	first aid treatment	reduction of natural beauty	public inconvenience
2	Discomfort	on-site appearance	public disfavor
1	None	none	none
0	N/A	N/A	N/A

Overall rating = (Use + Incident)*(Human Impact + Animal/Plant + Public)

Aspect/Impact/Activity: Turbine Operations Combined Cycle **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	8	6	2	1	2	70	YES
	Fugitive Air Emissions	0	6	2	1	1	24	NO
	Visual Generation	0	6	1	1	1	18	NO
Water Quality	HRSG Blowdown	10	0	1	1	1	30	NO
Land Quality	Fugitive Air Emissions	0	6	0	1	1	12	NO
Consumption	Natural Gas Use	9	0	0	0	1	9	NO
	Diesel Fuel Use	9	0	0	0	1	9	NO
	Water Use	9	0	0	2	0	18	NO
Other	Noise Generation	8	6	2	1	1	56	YES
	Odor Generation	4	2	1	1	1	18	NO
	RCF in HRSG interwalls	2	0	3	0	0	6	NO
	RCF in GT Exp. Joint	2	1	3	0	0	9	NO
							0	NO

Total Impact Rating: 279

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Aspect/Impact/Activity: Boiler Operations

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	10	5	1	1	2	60	YES
	Fugitive Air Emissions	5	5	0	0	1	10	NO
	Visual Generation	2	2	0	0	1	4	NO
Water Quality	Boiler Blowdown	10	0	1	1	1	30	NO
Land Quality	Fugitive Air Emissions	0	2	0	1	1	4	NO
Consumption	Natural Gas Use	10	0	0	0	1	10	NO
	Diesel Fuel Use	6	0	0	0	1	6	NO
	Water Use	10	0	0	2	0	20	NO
Other	Noise Generation	8	6	2	1	1	56	YES
	Odor Generation	4	2	1	1	1	18	NO
	RCF in Firebox (none now)	0	1	3	0	0	3	NO
							0	NO
							0	NO

Total Impact Rating: 221

Aspect/Impact/Activity: Cooling Tower Operations

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Tower Plume	8	6	2	1	1	56	YES
Water Quality	Tower Blowdown	10	0	1	1	1	30	NO
	Tower Water Bypass	1	1	0	1	0	2	NO
Land Quality	Tower Water Bypass	1	1	0	1	0	2	NO
Consumption	Water Usage	10	0	0	2	0	20	NO
Other	Noise Generation	8	6	2	1	1	56	YES
	Tower Plume (Nuisance)	8	2	2	1	1	40	NO
	Odor Generation	8	2	0	1	0	10	NO
							0	NO
							0	NO

Total Impact Rating: 216

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Aspect/Impact/Activity: Fuel Handling and Storage

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	10	2	1	1	2	48	YES
Water Quality	Oil Spill bypassing Containment	1	0	0	6	5	11	NO
Land Quality	Oil Spill	1	0	0	6	5	11	NO
Consumption	Reduction of Natural Resource	10	1	0	2	2	44	YES
Other	Odor Generation	1	6	1	1	2	28	NO
	Noise Generation	1	0	1	1	2	4	NO
	Fire Hazard	1	0	1	1	2	4	NO
							0	NO
							0	NO

Total Impact Rating: 150

Aspect/Impact/Activity: Hazardous Waste Handling and Storage **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Waste Spills	1	0	0	1	1	2	NO
Land Quality	Waste Spills	1	0	0	1	1	2	NO
Consumption							0	NO
Other	Odor Generation	1	6	0	1	1	14	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 18

Aspect/Impact/Activity: Universal Waste Handling and Storage **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Waste Spills	1	0	0	1	1	2	NO
Land Quality	Waste Spills	1	0	0	1	1	2	NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 4

Aspect/Impact/Activity: Solid Waste Handling and Storage

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Waste Spills	1	0	0	1	1	2	NO
Land Quality	Waste Spills	1	0	0	1	1	2	NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 4

Aspect/Impact/Activity: Lubricating Oil Handling and Storage

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Oil Spill	1	0	0	6	5	11	NO
Water Quality	Oil Spill	1	0	0	6	5	11	NO
Consumption							0	NO
Other	Fire Hazard	1	6	1	1	2	28	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 50

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Aspect/Impact/Activity: Chemical Handling and Storage **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Chemical Spill	1	0	0	1	1	2	NO
Land Quality	Chemical Spill	1	0	0	1	1	2	NO
Consumption							0	NO
Other	Chemical Hazard to personnel	1	6	2	1	1	28	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 32

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Aspect/Impact/Activity: Vehicle and Equipment Maintenance **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	8	0	2	2	2	48	YES
Water Quality	Lube or Fuel Oil Spill	1	0	1	2	1	4	NO
Land Quality	Lube or Fuel Oil Spill	1	0	1	2	1	4	NO
Consumption	Fuel use	9	0	0	0	1	9	NO
Other	Noise Generation	6	6	1	1	1	36	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 101

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Aspect/Impact/Activity: Distribution Piping

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Spill steam Chemicals	8	1	1	1	1	27	NO
Land Quality	Spill steam Chemicals	8	1	1	1	1	27	NO
Consumption							0	NO
Other	Temperature Hazard	8	6	2	1	1	56	YES
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 110

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Aspect/Impact/Activity: Wastewater Outfall **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Point Source of water Emissions	10	0	1	4	3	80	YES
Land Quality							0	NO
Consumption	Water Use	10	0	0	2	0	20	NO
Other	Visual Generation	3	6	1	1	1	27	NO
	Temperature Hazard	8	0	1	1	1	24	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 151

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	Year	Water Used	Capacity	Gallons/ % Capacity	Remarks:
Water Reduction Projects:	2002	298889118	16.07%	18,603,101	Hot dry Summer
	2003	252340364	16.61%	15,192,827	Cool wet Summer
	Average:			16,897,964	

Water from Demin keeps getting cut from the budget

Aspect/Impact/Activity: Stormwater Runoff

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Non-Point Source of water Emissions	6	0	1	3	1	30	NO
Land Quality							0	NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 30

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Aspect/Impact/Activity: Diesel Operations **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	6	0	1	1	1	18	NO
Diesel MACT	Point Source Air Emissions	2	0	1	1	1	6	NO
Water Quality							0	NO
Land Quality							0	NO
Consumption	Diesel Fuel Use	6	0	0	0	1	6	NO
Other	Noise Generation	6	6	1	1	1	36	NO
	Odor Generation	4	0	1	1	1	12	NO
							0	NO
							0	NO

Total Impact Rating: 78

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Aspect/Impact/Activity: Gas Compressor Operations

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source Air Emissions	0	0	0	0	0	0	NO
Water Quality							0	NO
Land Quality							0	NO
Consumption							0	NO
Other	Noise Generation	0	0	0	0	0	0	NO
	Odor Generation	0	0	0	0	0	0	NO
							0	NO
							0	NO
							0	NO

Note: this unit has been decommissioned.

Total Impact Rating: 0

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Aspect/Impact/Activity: Oil/Water Separator Operations

Date: February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Point Source of water Emissions	10	0	1	1	1	30	NO
Land Quality							0	NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

Total Impact Rating: 30

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Aspect/Impact/Activity: Water Treatment Plant (Demin) **Date:** February 15, 2011

		Frequency		Severity				
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Water Bypass	10	2	1	1	1	36	NO
Land Quality							0	NO
Consumption	Water Use	10	0	0	2	0	20	NO
Other	Noise Generation	10	6	1	1	1	48	YES
	Odor Generation	1	0	1	1	1	3	NO
	Chemical Burn Hazard	10	1	1	2	2	55	YES
							0	NO
							0	NO

Total Impact Rating: 162

Aspect/Impact/Activity: Contractor, Weed Control **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Effect Stormwater Sample	3	0	1	1	1	9	NO
Water Quality	Effect Acute and Chronic testing	3	1	1	1	1	12	NO
Land Quality	Kill vegetation and cause erosion	3	0	1	1	1	9	NO
Consumption							0	NO
Other	Noise Generation	3	0	1	1	1	9	NO
	Odor Generation	3	0	1	1	1	9	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 48

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Aspect/Impact/Activity: Contractor- Gardening **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality	Effect Stormwater Sample	6	0	1	1	1	18	NO
Water Quality	Effect Acute and Chronic testing	6	0	1	1	1	18	NO
Land Quality							0	NO
Consumption							0	NO
Other	Noise Generation	6	0	1	1	1	18	NO
	Odor Generation	6	0	1	1	1	18	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 72

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Aspect/Impact/Activity: Contractor - Trane (Air Conditioning) **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Point Source of contaminates	5	0	1	1	1	15	NO
Water Quality							0	NO
Land Quality							0	NO
Consumption							0	NO
Other	Noise Generation	5	0	1	1	1	15	NO
	Odor Generation	5	0	1	1	1	15	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 45

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Aspect/Impact/Activity: State Environmental Goals **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Reduce GHG's	8	0	2	2	2	48	YES
Water Quality	Reduce water use and nitrogen input	8	0	2	2	2	48	YES
Land Quality	Place more land into the State Enviro C	1	0		1		1	NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 97

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Aspect/Impact/Activity: State Environmental Goals (GHG) **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality	Reduce GHG's	9	0	2	2	2	54	YES
Water Quality								NO
Land Quality								NO
Consumption							0	NO
Other							0	NO
							0	NO
							0	NO
							0	NO
							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 54

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Aspect/Impact/Activity: Energy Conservation (ISO 5001) **Date:** February 15, 2011

		Frequency		Severity			Rating	
Category	Stages	Use	Incident	Human	Animal/Plant/ Waterway	Public	Impact Rating	Significant >40 (Y/N)
Air Quality							0	NO
Water Quality							0	NO
Land Quality							0	NO
Consumption	Diesel Fuel Use	3		2	1	2	15	NO
Consumption	Natural Gas Use	9		2	1	2	45	YES
Consumption	Water Use	9		2	1	2	45	YES
Consumption	Electrical Use	9		2	1	2	45	YES
Consumption	Chemical Use	4		2	1	2	20	NO
Other							0	NO

See Procedure A-13 Environmental Aspect/Impacts for instructions.

Total Impact Rating: 170

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