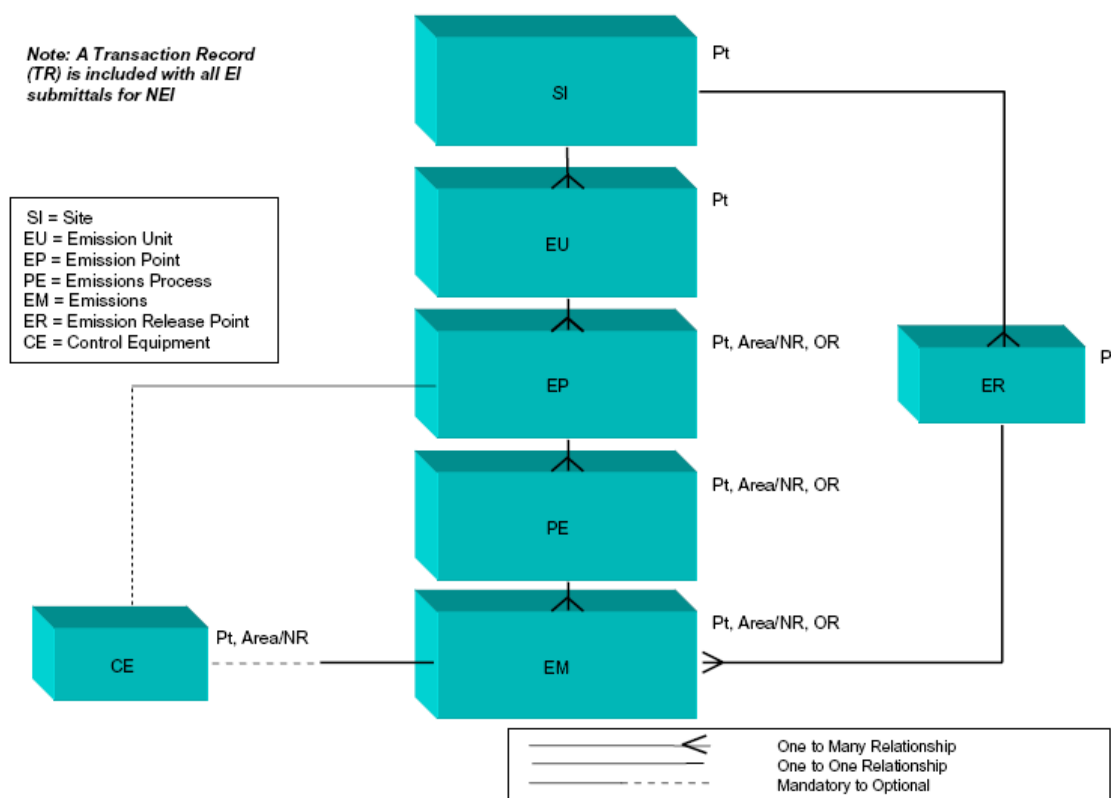


Appendix C
Comparison of the 2002 NEI Submittal with the 2002 HAP NEI

The 2002 NEI submittal was received from the TCEQ in National Emissions Inventory Input Format (NIF). NIF is a data format specification for state, local, and tribal agencies to use in preparation of air emissions inventory data files for electronic transfer to EPA. The file structure for point, area and non-road mobile sources, and on-road mobile sources, respectively, is shown in Figure 1. Note that 8 files form the point source inventory submission.

Figure 1. NIF emission inventory file relationships for point (Pt), area and non-road mobile sources (Area/NR), and on-road mobile sources (OR). Source: http://www.epa.gov/ttn/chief/nif/nif30/nifv3_userguideapr03_revnov2003.pdf.



Each file had a Federal Information Processing Standards (FIPS) code that was used to extract the necessary data for Corpus Christi (Nueces: 48355, San Patricio: 48409). For purposes of this study, three files from the 2002 NEI submittal were used: (1) the Site (SI) file contained the plant name, location (address), and unique identification number (i.e., STATE FACILITY IDENTIFIER); (2) the emission release point (ER) file described the emission release points, including their geo-coordinate locations, and (3) the emissions (EM) contained the magnitude and rate of emissions resulting from the activity for each pollutant of interest. By combining these three files, a new file was created for the 2002 NEI submittal that could be used for comparison with the 2002 HAP NEI.

Tables 1 through 10 compare emissions for the two inventories by facility and pollutant. Consistent with the U.S. EPA's assertion that the Texas submittals undergo a quality

assurance review but no further processing, the magnitudes of emissions were identical for most facilities with several notable exceptions (highlighted in red).

The most significant differences between the two inventories arose for the Flint Hills Resources West Plant. As described above, the STATE FACILITY IDENTIFIER (SFID) was a unique identification number for each facility. In the case of the Flint Hills Resources West Plant, two SFIDs existed in the 2002 HAP NEI (17 and T\$11909), but only one of these was present in the 2002 NEI submittal (17). Although total emissions for the two SFIDs were very similar (ref. Table 11) their geographic locations were completely different as shown in Figure 2. SFID T\$11909 was at the correct general location of the Flint Hills West Plant, but SFID 17 was not. Our hypothesis was that during the quality assurance phase, SFID T\$11909 was created to correct the erroneous location of SFID 17 for Flint Hills and emissions were slightly modified to match the TRI, but the old records for SFID 17 were not removed. It appeared that this has resulted in a double counting of emissions for the Flint Hills West Plant in the 2002 HAP NEI.

This same type of modification occurred for other facilities, as shown in Table 11, although the magnitudes of the impacts were far less significant than for the Flint Hills West Plant. Emissions of 1,3-butadiene were not included for the Citgo West and Valero East Plants in the 2002 NEI submittal, but were added under different SFIDs in the 2002 HAP NEI presumably to match the 2002 TRI. Similarly, emissions for tetrachloroethylene were not included for Univar USA and Occidental Chemical Corporation in the 2002 NEI submittal but were added under a new SFID in the 2002 HAP NEI.

The other notable differences between the two inventories were the geo-coordinates (i.e., latitude and longitude) of the emission release points. For the same SFIDs, the 2002 submittal included many more coordinates (1673) than the 2002 HAP NEI (355) across all pollutants. Only 104 coordinates could be matched between the inventories for the same SFIDs. An example of the discrepancies is shown in Figure 3 for the benzene emissions inventory. The total emissions for the facilities, with the exception of those described above, were largely identical, but it appeared that geo-coordinates for many release points were combined for the 2002 HAP NEI. There were no obvious relationships that could be used to explain the method for reduction in release points. Differences in the spatial allocation of emissions between the 2002 HAP NEI and the more recent 2005 NEI submittal and 2005 TCEQ Photochemical Modeling EI are explored in Section 5.4 of the main report.

Table 1. Comparison of annual benzene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal	2002 HAP NEI	
			Total Emissions (tpy)	Total Emissions (tpy)	
NUECES	BARNEY M DAVIS POWER STATION	47	0.02	0.02	
	BISHOP FACILITY	2	2.35	2.35	
	BTB REFINING	114	0.48	0.48	
	CITGO CORPUS CHRISTI DEEP SEA TERMINAL	64	0.38	0.38	
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	115	0.49	0.49	
	CITGO CORPUS CHRISTI REFINERY EAST PLANT	3	21.57	21.57	
	CORPUS CHRISTI ARMY DEPOT	57	0.02	0.02	
	ELEMENTIS CORPUS CHRISTI SITE	110	0.13	0.13	
	EQUISTAR CORPUS CHRISTI PLANT	89	2.07	2.07	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	43.48	43.12	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	TS11909		44.01	
	FLINT HILLS RESOURCES EAST REFINERY	20	5.02	5.02	
	FLOUR BLUFF STATION	30	1.12	1.12	
	GULF PLAINS GAS PLANT	4	0.00	0.00	
	LON C HILL POWER STATION	15	0.00	0.00	
	NUECES BAY POWER STATION	14	0.01	0.01	
	SHOUP GAS PLANT	132	0.35	0.35	
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	18	9.27	37.32	
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	4.69	4.69	
	COGENERATION FACILITY	176		0.02	
	Port of Corpus Christi Oil Dock No. 11	ES0603-189		0.01	
	Port of Corpus Christi Oil Dock No. 7	ES0603-190		0.08	
	Port of Corpus Christi Oil Dock No. 9	ES0603-191		0.01	
	MARINE LOADING DOCKS	177	3.52	3.52	
	WILLIAMS TERMINAL HOLDINGS L P	98	0.00	0.00	
	CORPUS CHRISTI TERMINAL	667	4.14	0.00	
	NUECES COUNTY Total Emissions			99.09	166.78
	SAN PATRICIO	GREGORY PLANT	3		0.00
		INGLESIDE MARINE TERMINAL	30	0.18	0.18
		GREGORY POWER FACILITY	52		0.16
		SHERWIN ALUMINA GREGORY	5		0.00
		CORPUS CHRISTI PLANT	10	0.00	0.00
		INGLESIDE TRANSFER FACILITY	53	1.69	1.69
TAFT COMPRESSOR STATION		39	0.05	0.05	
SAN PATRICIO COUNTY Total Emissions			1.93	2.08	

Table 2. Comparison of annual xylene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal	2002 HAP NEI	
			Total Emissions (tpy)	Total Emissions (tpy)	
NUECES	BTB REFINING	114	0.04	0.04	
	CITGO CORPUS CHRISTI DEEP SEA TERMINAL	64	0.25	0.25	
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	115	0.00	0.00	
	CITGO CORPUS CHRISTI REFINERY EAST PLANT	3	2.08	2.08	
	CORPUS CHRISTI ARMY DEPOT	57	1.16	1.16	
	CORPUS CHRISTI TERMINAL	667	0.63		
	EQUISTAR CORPUS CHRISTI PLANT	89	0.33	0.33	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	43.45	43.45	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	TS11909		44.45	
	FLINT HILLS RESOURCES EAST REFINERY	20	6.05	6.05	
	FLOUR BLUFF STATION	30	1.89	1.89	
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	18	7.33	5.39	
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	4.29	4.29	
	COGENERATION FACILITY	176		0.15	
	MARINE LOADING DOCKS	177	1.25	1.25	
	Port of Corpus Christi Oil Dock No. 11	ES0603-189		0.05	
	Port of Corpus Christi Oil Dock No. 7	ES0603-190		0.51	
	Port of Corpus Christi Oil Dock No. 9	ES0603-191		1.86	
	NUECES COUNTY Total Emissions			68.76	113.22
	SAN PATRICIO	INGLESIDE MARINE TERMINAL	30	0.11	0.11
INGLESIDE PLANT		44	0.50	0.50	
INGLESIDE TRANSFER FACILITY		53	0.65	0.65	
TAFT COMPRESSOR STATION		39	0.12	0.12	
GREGORY POWER FACILITY		52	0.85	0.85	
SAN PATRICIO COUNTY Total Emissions			2.23	2.23	

Table 3. Comparison of annual ethylbenzene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal	2002 HAP NEI	
			Total Emissions (tpy)	Total Emissions (tpy)	
NUECES	CITGO CORPUS CHRISTI REFINERY EAST PLANT	3	5.41	5.41	
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	115	0.46	0.46	
	CITGO CORPUS CHRISTI DEEP SEA TERMINAL	64	0.02	0.02	
	CORPUS CHRISTI ARMY DEPOT	57	0.00	0.00	
	EQUISTAR CORPUS CHRISTI PLANT	89	0.39	0.39	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	10.45	10.42	
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	TS11909		10.70	
	FLINT HILLS RESOURCES EAST REFINERY	20	1.81	1.81	
	FLOUR BLUFF STATION	30	0.74	0.74	
	BTB REFINING	114	0.07	0.07	
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	18	0.05	0.05	
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	0.78	0.77	
	COGENERATION FACILITY	176		0.08	
	Port of Corpus Christi Oil Dock No. 9	ES0603-191		0.00	
	NUECES COUNTY Total Emissions			20.17	30.92
	SAN PATRICIO	INGLESIDE MARINE TERMINAL	30	0.03	0.03
GREGORY POWER FACILITY		52	0.43	0.43	
INGLESIDE PLANT		44	0.25	0.25	
INGLESIDE TRANSFER FACILITY		53	0.17	0.17	
TAFT COMPRESSOR STATION		39	0.00	0.00	
SAN PATRICIO COUNTY Total Emissions			0.88	0.88	

Table 4. Comparison of annual toluene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal	2002 HAP NEI
			Total Emissions (tpy)	Total Emissions (tpy)
NUECES	BARNEY M DAVIS POWER STATION	47		0.03
	CITGO CORPUS CHRISTI REFINERY EAST PLANT	3	31.54	31.54
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	115	1.26	1.26
	CITGO CORPUS CHRISTI DEEP SEA TERMINAL	64	1.31	1.31
	CORPUS CHRISTI ARMY DEPOT	57	2.47	2.47
	EQUISTAR CORPUS CHRISTI PLANT	89	0.96	0.96
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	25.68	25.50
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	TS11909		29.28
	FLINT HILLS RESOURCES EAST REFINERY	20	7.74	7.74
	LON C HILL POWER STATION	15		0.00
	CORPUS CHRISTI TERMINAL	667	5.30	
	NUECES BAY POWER STATION	14		0.02
	FLOUR BLUFF STATION	30	1.36	1.36
	BTB REFINING	114	0.40	0.40
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	18	5.41	2.39
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	4.15	4.15
	COGENERATION FACILITY	176		0.31
	MARINE LOADING DOCKS	177	5.60	5.60
	Port of Corpus Christi Oil Dock No. 11	ES0603-189		0.02
	Port of Corpus Christi Oil Dock No. 7	ES0603-190		0.15
Port of Corpus Christi Oil Dock No. 9	ES0603-191		0.16	
NUECES COUNTY Total Emissions			93.19	114.64
SAN PATRICIO	INGLESIDE MARINE TERMINAL	30	0.13	0.13
	GREGORY POWER FACILITY	52	1.74	1.74
	INGLESIDE PLANT	44	0.68	0.68
	INGLESIDE TRANSFER FACILITY	53	1.53	1.53
	SAN PATRICIO COUNTY Total Emissions			4.08

Table 5. Comparison of annual 1,3-butadiene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal	2002 HAP NEI
			Total Emissions (tpy)	Total Emissions (tpy)
NUECES	CITGO CORPUS CHRISTI REFINERY - EAST PLANT	3	0.05	0.05
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	TS11907		0.03
	CORPUS CHRISTI ARMY DEPOT	57	0.02	0.02
	EQUISTAR CORPUS CHRISTI PLANT	89	0.69	0.69
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	0.07	0.07
	FLINT HILLS RESOURCES EAST REFINERY	20	0.02	0.02
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	TS11899		0.08
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	0.03	0.03
	BARNEY M DAVIS POWER STATION	47		0.00
	COGENERATION FACILITY	176		0.00
	NUECES COUNTY Total Emissions			0.88
SAN PATRICIO	GREGORY POWER FACILITY	52		0.01
	SAN PATRICIO COUNTY Total Emissions			0.00

Table 6. Comparison of annual acrolein emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal Total Emissions (tpy)	2002 HAP NEI Total Emissions (tpy)
NUECES	CORPUS CHRISTI ARMY DEPOT	57	0.02	0.02
	SHOUP GAS PLANT	132	1.40	1.40
	COGENERATION FACILITY	176		0.02
	NUECES COUNTY Total Emissions		1.41	1.43
SAN PATRICIO	GREGORY POWER FACILITY	52		0.10
	SAN PATRICIO COUNTY Total Emissions		0.00	0.10

Table 7. Comparison of annual formaldehyde emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal Total Emissions (tpy)	2002 HAP NEI Total Emissions (tpy)
NUECES	BARNEY M DAVIS POWER STATION	47	0.65	0.65
	CITGO CORPUS CHRISTI REFINERY EAST PLANT	3		0.00
	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	115		0.00
	CORPUS CHRISTI ARMY DEPOT	57	0.05	0.05
	GULF PLAINS GAS PLANT	4	0.00	0.00
	SHOUP GAS PLANT	132	9.89	9.89
	EQUISTAR CORPUS CHRISTI PLANT	89		0.00
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17		0.00
	FLINT HILLS RESOURCES EAST REFINERY	20		0.00
	LON C HILL POWER STATION	15	0.08	0.08
	CORPUS CHRISTI TERMINAL	667		0.00
	NUECES BAY POWER STATION	14	0.37	0.37
	BISHOP FACILITY	2	69.55	69.55
	BTB REFINING	114		0.00
	VALERO CORPUS CHRISTI REFINERY EAST PLANT	18		0.00
	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50		0.00
	AMERICAN CHROME & CHEMICALS LP	110		0.00
	COGENERATION FACILITY	176		0.00
	NUECES COUNTY Total Emissions		80.59	80.59
SAN PATRICIO	GREGORY PLANT	3	0.00	0.00
	GREGORY POWER FACILITY	52	0.38	0.38
	INGLESIDE PLANT	44	7.51	7.51
	SHERWIN PLANT	5		0.00
	SAN PATRICIO COUNTY Total Emissions		7.89	7.89

Table 8. Comparison of annual vinyl chloride emissions inventories from sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal Total Emissions (tpy)	2002 HAP NEI Total Emissions (tpy)
NUECES	NUECES COUNTY Total Emissions		0.00	0.00
SAN PATRICIO	INGLESIDE PLANT	44	1.41	1.41
	CORPUS CHRISTI PLANT	10	0.51	0.51
	SAN PATRICIO COUNTY Total Emissions		1.93	1.93

Table 9. Comparison of annual tetrachloroethylene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal Total Emissions (tpy)	2002 HAP NEI Total Emissions (tpy)
NUECES	VALERO CORPUS CHRISTI REFINERY WEST PLANT	50	0.02	0.02
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	TS11909		0.39
	UNIVAR USA	TS11906		0.04
	NUECES COUNTY Total Emissions		0.02	0.44
SAN PATRICIO	OCCIDENTAL CHEMICAL CORP	TS11895		0.01
	CORPUS CHRISTI PLANT	10	1.44	1.44
	SAN PATRICIO COUNTY Total Emissions		1.44	1.45

Table 10. Comparison of annual trichloroethylene emissions between the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI for sites in Nueces and San Patricio Counties.

COUNTY	Facility Name	State Facility Identifier	2002 NEI submittal Total Emissions (tpy)	2002 HAP NEI Total Emissions (tpy)
NUECES	CORPUS CHRISTI ARMY DEPOT	57	0.14	0.14
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	17	6.35	6.35
	FLINT HILLS RESOURCES CORPUS CHRISTI WEST PLANT	T\$11909	6.35	6.35
	FLINT HILLS RESOURCES EAST REFINERY	20	1.10	1.10
	NUECES COUNTY Total Emissions		7.60	13.94
SAN PATRICIO	INGLESIDE PLANT	44	0.68	0.68
	SAN PATRICIO COUNTY Total Emissions		0.68	0.68

Table 11. Comparison of emissions for facilities with different SFIDs in the 2002 NEI submittal by the TCEQ and the 2002 HAP NEI. Emissions for the 2002 TRI are also shown

Flint Hills West Plant	2002 NEI Submittal (tpy)	2002 HAP NEI (tpy)			2002 TRI (tpy)
		State Facility Identifier	Total(17 & T\$11909)	T\$11909	
State Facility Identifier	17	Total(17 & T\$11909)	17	T\$11909	N/A
Benzene	43.48	87.13	43.12	44.01	44.01
Xylene	43.45	87.90	43.45	44.45	44.45
Ethylbenzene	10.45	21.12	10.42	10.70	10.70
Toluene	25.68	54.78	25.50	29.28	29.28
Tetrachloroethylene		0.39		0.39	0.39
Trichloroethylene (tce)	6.35	12.70	6.35	6.35	6.35

Citgo West Plant	2002 NEI Submittal (tpy)	2002 HAP NEI (tpy)			2002 TRI (tpy)
		State Facility Identifier	Total(115 & T\$11907)	T\$11907	
State Facility Identifier	115	Total(115 & T\$11907)	115	T\$11907	N/A
1,3-Butadiene		0.03		0.03	0.03

Valero East Plant	2002 NEI Submittal (tpy)	2002 HAP NEI (tpy)			2002 TRI (tpy)
		State Facility Identifier	Total(18 & T\$11899)	T\$11899	
State Facility Identifier	18	Total(18 & T\$11899)	18	T\$11899	N/A
1,3-Butadiene		0.08		0.08	0.08

UNIVAR USA	2002 NEI Submittal (tpy)	2002 HAP NEI (tpy)			2002 TRI (tpy)
		State Facility Identifier	Total(T\$11906)	T\$11906	
State Facility Identifier	N/A	Total(T\$11906)	N/A	T\$11906	
Tetrachloroethylene		0.04		0.04	0.04

OCCIDENTAL CHEMICAL CORP	2002 NEI Submittal (tpy)	2002 HAP NEI (tpy)			2002 TRI (tpy)
		State Facility Identifier	Total(T\$11895)	T\$11895	
State Facility Identifier	N/A	Total(T\$11895)	N/A	T\$11895	N/A
Tetrachloroethylene		0.01		0.01	0.01

Figure 2. Flint Hill Resources West Plant locations for SFID 17 & T\$11909.

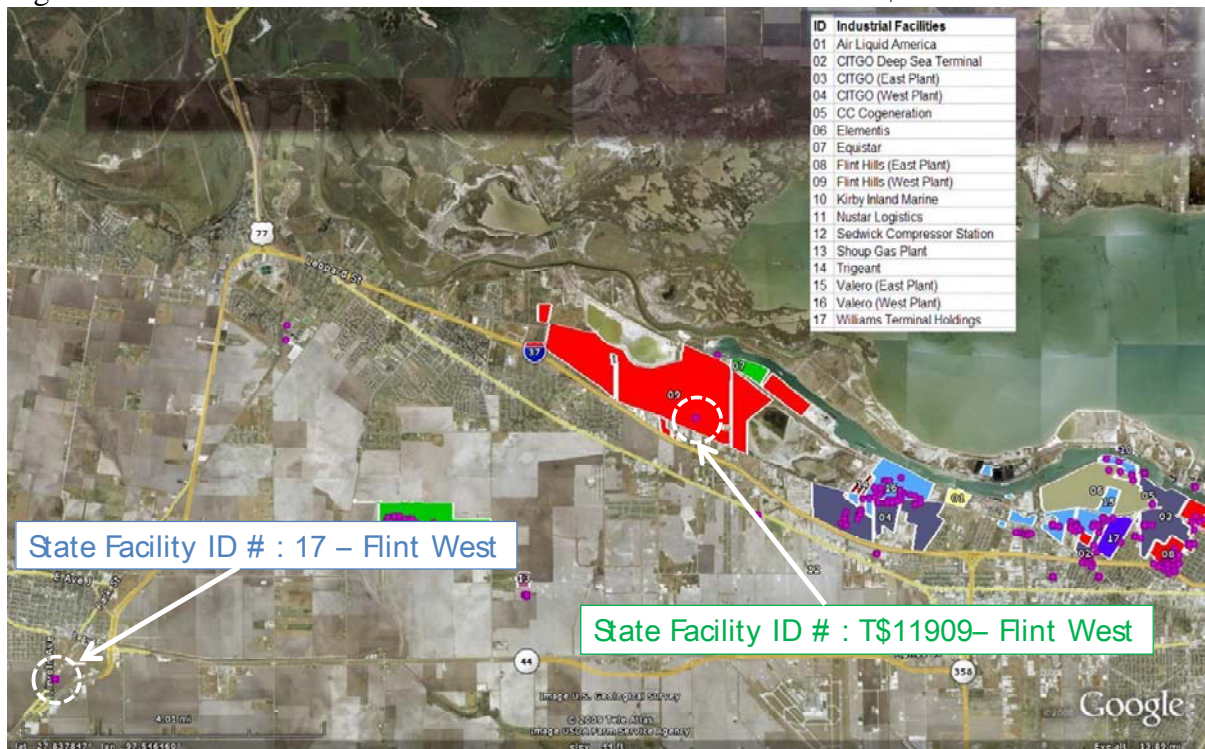


Figure 3. Comparison of geo-coordinates of benzene emission release points in the 2002 NEI submittal (blue dot) and 2002 HAP NEI (yellow dot) for the Corpus Christi area.

