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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

~~DRAFT~~TENTATIVE ADDENDUM NO. 4
TO
CLEANUP AND ABATEMENT ORDER NO. R9-2004-0258

TDY INDUSTRIES, INC.
(f/k/a TELEDYNE INDUSTRIES, INC.)
TDY HOLDINGS, LLC
AND
TELEDYNE RYAN AERONAUTICAL COMPANY

2701 NORTH HARBOR DRIVE
SAN DIEGO, CALIFORNIA
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board) finds that:

1. **CLEANUP AND ABATEMENT ORDER NO. R9-2004-0258.** Except as contradicted or superseded by the findings and directives set forth in this Addendum No. 4 to Cleanup and Abatement Order (CAO) No. R9-2004-0258, all of the previous findings and directives of the CAO and Addenda Nos. 1, 2, and 3 remain in full force and effect.

2. **SCOPE.** Addendum No. 4 only addresses the cleanup and abatement of wastes discharged to land at the former Teledyne Ryan Aeronautical (TDY) site. All significant wastes discharged to soil and groundwater at the site must be identified and cleaned up, and the discharge of any wastes to Convair Lagoon and San Diego Bay must be abated. A subsequent enforcement Order will be necessary to assess and cleanup wastes discharged from landside sources to the marine sediments in Convair Lagoon and San Diego Bay. Soil and groundwater must be cleaned up and waste discharges abated prior to conducting remedial actions in Convair Lagoon and San Diego Bay to prevent potential recontamination of the marine sediments in the bay. This addendum, once fully executed, is expected to prevent waste discharges from the TDY site to Convair Lagoon and San Diego Bay.

3. **SUPPORTING DOCUMENTS.** The findings in Addendum No. 4 are supported by the following key documents:

   a. Site Characterization Report. Airport/Former Teledyne Ryan Aeronautical Site, 2701 North Harbor Drive, San Diego, California. Geosyntec Consultants. December 19, 2005.

b. PCB Characterization Report. 2701 North Harbor Drive, San Diego, California. Geosyntec Consultants. June 29, 2010.

c. Site Wide Risk Assessment. Airport/Former TRA Site, 2701 North Harbor Drive, San Diego, California. Geosyntec Consultants. ~~March 2, 2010~~August 27, 2007, Revised February 11, 2008.

d. Remedial Investigation/Feasibility Study (RI/FS). 2701 North Harbor Drive, San Diego, California. Geosyntec Consultants. August 16, 2010.

e. Interim Removal Action Status. Letter from Brian Hitchens of Geosyntec Consultants to Tom Alo of the San Diego Water Board. Geosyntec Consultants. May 1, 2009.

f. Evaluation of Alternate Cleanup Goals for VOCs and TPH. Technical Memorandum from Brian Hitchens of Geosyntec Consultants to Tom Alo of the San Diego Water Board. December 6, 2010.

g. Evaluation of Alternate Cleanup Goals for Metals. Technical Memorandum from Brian Hitchens of Geosyntec Consultants to Tom Alo of the San Diego Water Board. December 6, 2010.

h. Sampling of Water in the Storm Drains Beneath the Former TRA Facility. Technical Memorandum from Beth Breitenbach of Haley & Aldrich to Tom Alo of the San Diego Water Board. March 11, 2011.

DEMOLITION

4. **DEMOLITION AND CLEANUP ACTIVITIES.** The former TDY site is vacant and leased by the San Diego County Regional Airport Authority (Airport Authority). The Airport Authority plans on redeveloping the site and as such, demolition activities are underway and being performed by the San Diego Unified Port District (Port District) as described in Finding 6 of Addendum No. 3 to CAO No. R9-2004-0258. Demolition is anticipated to be completed in June 2012. An Environmental Impact Report (EIR) was certified by the Port District in 2009 for the demolition project, but the scope of that project does not extend to cleanup and abatement activities required under this Order. The Port District ~~is currently demolishing~~has demolished all above grade structures comprised of office and support buildings, manufacturing buildings, warehouses, and sheds~~. This phase~~, with the exception of ~~demolition activity will be completed by February 2011~~Building 100. Removal of Building 100 and subsurface structures such as concrete slabs, foundations, utilities, and most of the onsite storm water conveyance system (SWCS) ~~will~~ is scheduled to commence in June 2011 and end approximately in June 2012. During and after demolition, TDY plans ~~on conducting~~to conduct remedial actions to complete the cleanup and abatement

of ~~all wastes discharged~~waste discharges at the former TDY site to the cleanup levels specified in Directive No. 2.

5. **ONSITE STORM WATER CONVEYANCE SYSTEM.** Site demolition will affect the onsite SWCS at the former TDY site. The SWCS is a significant pathway through which ~~contaminated~~impacted sediment is discharged into Convair Lagoon and San Diego Bay. The onsite SWCS consists of the catch basins and laterals that drain the entire 44-acre site and includes 4 storm drains that discharge storm water from the site to Convair Lagoon (shown in Attachment 1). The 4 Convair Lagoon storm drains are referred to in this Order as the 54-inch, 30-inch west, 60-inch, and 30-inch east storm drains. Additionally, ~~2~~two storm drains discharge storm water from the site to San Diego Bay. The ~~2~~two San Diego Bay storm drains are referred to in this Order as the ~~15~~18-inch and 30-inch storm drains. As part of the site demolition, all portions of the onsite SWCS that originate on the site have been capped with concrete as described below. Consequently, all storm water runoff from the site will be collected, treated, and discharged to the sanitary sewer system. Demolition activities with respect to the SWCS are described below.

   a. **60-inch Convair Lagoon Storm Drain.** This storm drain is active and only receives storm water runoff from areas upstream of the site. All laterals ~~connected~~that receive storm water runoff from the site ~~to this storm drain~~ are capped with concrete where they connect to the 60-inch storm drain and will be removed by the Port District during site demolition. This storm drain will remain in place after site demolition and will ~~be removed by the Port District during site demolition. This storm drain will remain in place after site demolition~~continue to receive storm water runoff from areas upstream of the site only until the site is redeveloped. The 60-inch storm drain is ~~owned,~~ maintained~~,~~ and operated by the City of San Diego. Before entering Convair Lagoon, storm water from the 60-inch storm drain flows through an energy dissipation channel. For the purposes of this Order, the energy dissipation channel is considered to be part of the 60-inch storm drain

   b. **54-inch Convair Lagoon Storm Drain.** This storm drain is active and only receives storm water runoff from areas upstream of the site. All laterals ~~connected from the site to this storm drain~~that receive storm water runoff from the site, including the 30-inch conduit/pipe from the Airport Authority's property, are capped with concrete where they connect to the 54-inch storm drain and will be removed by the Port District during site demolition. This storm drain will remain in place after site demolition and will continue to receive storm water runoff from areas upstream of the site until the site is redeveloped. The 54-inch storm drain is ~~owned,~~ maintained~~,~~ and operated by the Airport Authority.

c. **30-inch West Convair Lagoon Storm Drain.** ~~This~~ The on-site portion of this storm drain is inactive, capped with concrete at the southern property boundary, and will be removed by the Port District during site demolition. The off-site portion of this storm drain (from the concrete cap to Convair Lagoon) will remain in-place after site demolition. The 30-inch west storm drain was previously ~~owned,~~ maintained~~,~~ and operated by TDY.

d. **30-inch East Convair Lagoon Storm Drain.** ~~This~~The on-site portion of this storm drain is inactive, capped with concrete at the southern property boundary, and will be removed by the Port District during site demolition. The off-site portion of this storm drain (from the concrete cap to Convair Lagoon) will remain in-place after site demolition. The 30-inch east storm drain was previously ~~owned,~~ maintained~~,~~ and operated by TDY.

~~e.~~ ~~15~~**18-inch San Diego Bay Storm Drain.** ~~This~~The on-site portion of this storm drain is inactive, capped with concrete at the ~~property boundary, and will be removed by the Port District during site demolition. The 15-inch storm drain was previously owned, maintained, and operated by TDY.~~

e. ~~**30-inch San Diego Bay Storm Drain.** This storm drain is inactive, capped at the~~ southern property boundary, and will be removed by the Port District during site demolition. The off-site portion of this storm drain (from the concrete cap to San Diego Bay) will remain in-place after site demolition. The 18-inch storm drain was previously maintained and operated by TDY.

f. **30-inch San Diego Bay Storm Drain.** The on-site portion of this storm drain is inactive, capped with concrete at the southern property boundary, and will be removed by the Port District during site demolition. The off-site portion of this storm drain (from the concrete cap to San Diego Bay) will remain in-place after site demolition. The 30-inch storm drain was previously ~~owned,~~ maintained~~,~~ and operated by TDY.

~~CHEMICALS~~CONSTITUENTS AND AREAS OF CONCERN

6. ~~**CHEMICALS OF CONCERN.** The chemical classes that are of concern due to the~~ **WASTES DISCHARGED.** The wastes discharged at the former TDY site include polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), metals, and total petroleum hydrocarbons (TPH).[1]

~~7.~~ ~~**AREAS OF POTENTIAL CONCERN AND**~~ **CONSTITUENTS AND AREAS OF CONCERN FOR WASTES IN SOIL AND GROUNDWATER** ~~**CONTAMINATION.** The table below identifies the Areas of Potential Concern (AOPCs) and Areas of~~

[1] This finding is supported by the information in the Site Characterization Report (Section 8, pages 45-52) and the PCB Characterization Report (Section 4, pages 90-104).

Concern (AOCs) at the site due to soil and. The former TDY site is located in an area where groundwater contamination and identifies whether or not interim remedial actions have been conducted. The AOPCs and AOCs are shown in Attachment 2.[2]

Table 1 - Areas of Potential Concern and Areas of Concern for Soil and Groundwater Contamination

	AOPC (1)	AOC (2)	Media	Chemicals of Concern (3)	Interim Remedial Actions Conducted (4)
Former Explosives Area	X		Soil	PCBs	
Test Cell #4 / Area D	X		Soil	TPH-related LNAPL with PCBs	X
Building 142	X		Groundwater	VOCs	
Building 146 Southeast	X		Groundwater	VOCs	
Building 120 West	X		Soil	PCBs	
Building 222/228	X		Soil	Metals PCBs	
Building 121 South	X		Soil	PCBs	
Building 131/242		X	Soil	PCE	X
			Groundwater	PCE TCE cis-1,2-DCE vinyl chloride	X
			Soil Gas	PCE TCE cis-1,2-DCE 1,1-DCA vinyl chloride benzene	X
Building 156		X	Soil	PCBs PCE	X
			Soil Gas	VOCs	X
Building 158		X	Soil	CrVI n-butylbenzene ethylbenzene n-propylbenzene isopropylbenzene	X

[2] This finding is supported by the information in the Site Characterization Report (Section 8, pages 45-52) and RI/FS (Section 5.5, pages 36-40).

	AOPC (1)	AOC (2)	Media	Chemicals of Concern (3)	Interim Remedial Actions Conducted (4)
				naphthalene xylene 1,2,4-TMB 1,3,5-TMB TPH	
			Groundwater	CrVI	X
			Soil Gas	vinyl chloride benzene	
Building 102		X	Soil	1,2,4-TMB naphthalene TPH	X
Building 120 South		X	Soil	TPH TPH-related LNAPL with PCBs	X
Building 130/166 AST/120/121		X	Soil	PCE PCBs	
			Groundwater	PCE TCE cis-1,2-DCE PCBs	X
			Soil Gas	PCE TCE cis-1,2-DCE carbon tetrachloride 1,1,2-TCA 1,1-DCA	X
Former Maintenance Yard		X	Groundwater	PCE	X
			Soil Gas	PCE TCE	X
Building 180		X	Soil	TPH PCBs	X
			Groundwater	vinyl chloride	X

1. AOPC = Area of Potential Concern. AOPCs were identified during the initial site investigation. These areas have chemicals in has no designated beneficial uses. Further, as discussed in Finding 11, there are no ecological receptors at the site that would potentially be exposed to impacted soil and groundwater detected more than once post demolition and cleanup. Several constituents discharged to soil

and groundwater, however, are at concentrations ~~exceeding the detection limit or background.~~

~~2. AOC = Area of Concern. AOCs have one or more of the chemicals~~that pose unacceptable human health risks.

Table 1 lists constituents of concern (COCs) and areas of concern ~~in soil, soil gas, or groundwater that exceed the~~(AOCs) for the site. COCs are those constituents with a maximum concentration at the site that exceeds a soil or groundwater risk-based concentrations (RBCs~~) for those chemicals. The~~). RBCs are the ~~chemical~~ concentrations above which a potentially unacceptable cancer ~~risk~~ or health hazard may exist ~~onsite to~~for a future ~~receptors of~~ on-site worker as discussed in Finding 9. Areas of concern~~.~~

7. are areas at the site where one or more COCs have been detected above an RBC. Table 1 also indicated if interim remedial actions have been conducted in the AOCs. A map of the AOCs is shown in Attachment 2.[3]

~~3~~

Table 1 – Constituents and Areas of Concern for Wastes in Soil and Groundwater

Areas of Concern	Media	Constituents of Concern (1)	Interim Remedial Actions Conducted (2)
Building 131/242	Soil	PCE	X
	Groundwater	PCE TCE cis-1,2-DCE vinyl chloride dibenz(a,h)anthracene	X
	Soil Gas	PCE TCE cis-1,2-DCE 1,1-DCA vinyl chloride benzene	X
Building 156	Soil	PCBs PCE	X
	Soil Gas	VOCs	X
Building 158	Soil	CrVI n-butylbenzene ethylbenzene	X

[3] This finding is supported by the information in the Site Characterization Report (Section 8, pages 45-52) and RI/FS (Section 5.5, pages 36-40).

Areas of Concern	Media	Constituents of Concern (1)	Interim Remedial Actions Conducted (2)
		n-propylbenzene isopropylbenzene naphthalene xylene 1,2,4-TMB 1,3,5-TMB TPH	
	Groundwater	CrVI	X
	Soil Gas	vinyl chloride benzene	
Building 102	Soil	1,2,4-TMB naphthalene TPH	X
Building 120 South	Soil	TPH TPH-related LNAPL with PCBs	X
Building 130/166 AST/120/121	Soil	PCE PCBs	
	Groundwater	PCE TCE cis-1,2-DCE PCBs	X
	Soil Gas	PCE TCE cis-1,2-DCE carbon tetrachloride 1,1,2-TCA 1,1-DCA	X
Former Maintenance Yard	Groundwater	PCE	X
	Soil Gas	PCE TCE	X
Building 180	Soil	TPH PCBs	X
	Groundwater	vinyl chloride	X

1. VOCs = volatile organic compounds
TPH = total petroleum hydrocarbons
LNAPL = light non-aqueous phase liquid
PCE = tetrachloroethene
TCE = trichloroethene
cis-1,2-DCE = cis-1,2-dichloroethene
1,1-DCA = 1,1-dichloroethane
CrVI = hexavalent chromium

PCBs = polychlorinated biphenyls
1,2,4-TMB = 1,2,4-trimethylbenzene
1,3,5-TMB = 1,3,5-trimethylbenzene
1,1,2-TCA = 1,1,2-trichloroethane

~~4~~2. See Finding 16 for details on interim remedial actions. Further remedial actions are needed at several of the AOCs.

8. **CONSTITUENTS AND AREAS OF CONCERN FOR ~~POTENTIAL~~ TRANSPORT OF ~~CONTAMINATED MEDIA~~WASTES TO CONVAIR LAGOON.** ~~The table below~~ Table 2 identifies the areas of concern ~~due to~~for the ~~potential~~ transport of ~~contaminated media~~wastes to Convair Lagoon, and identifies whether or not interim remedial actions have been conducted. The AOCs include:

a. the Convair Lagoon shoreline where constituents concentrations above California Toxics Rule (CTR) criteria were detected in groundwater in monitoring wells installed along the Convair Lagoon shoreline,

b. the Convair Lagoon storm drains (60-inch, 54-inch, 30-inch west, and 30-inch east) and San Diego Bay storm drains (18-inch and 30-inch) which contain PCB-contaminated sediment from the site that can be transported to the lagoon and bay, and

c. the 60-inch and 54-inch Convair Lagoon storm drains where VOC wastes were detected below CTR criteria in groundwater seeping into the storm drains,

These areas of concern are ~~described~~further discussed in Finding 10 and are shown in Attachment 3.[4]

Table 2 ~~–~~ Constituents and Areas of Concern for ~~Potential~~ Transport of ~~Contaminated Media~~Wastes to Convair Lagoon

Areas of Concern	Media	~~Chemicals~~Constituents of Concern ~~(1)~~	Interim Remedial Actions Conducted (~~2~~1)
Convair Lagoon Shoreline Wells (2)	Groundwater	PCBs, copper, nickel, silver, thallium, zinc, bis(2-ethylhexl)phthalate	
~~60-inch Convair Lagoon Storm Drain~~	~~Sediment~~	~~PCBs~~	~~X~~
60-inch Convair Lagoon	Sediment	PCBs	X

[4] This finding is supported by the information in the PCB Characterization Report (Section 4.3.2, pages 92-99) and Site Wide Risk Assessment (Appendix A, Section 3.1, pages A-4 to A-10 and Section 4.3, pages A-13 to A-14).

Areas of Concern	Media	~~Chemicals~~Constituents of Concern ~~(1)~~	Interim Remedial Actions Conducted (~~2~~1)
Storm Drain	Groundwater Seeps	Not sampled (3)(4)	X
		VOCs (5)	
54-inch Convair Lagoon Storm Drain	Sediment	PCBs	X
	Groundwater Seeps	PCBs	X
		Not Sampled (4)	
30-inch West Convair Lagoon Storm Drain	Sediment	PCBs	X
30-inch East Convair Lagoon Storm Drain	Sediment	PCBs	X
18-inch San Diego Bay Storm Drain	Sediment	PCBs	X
30-inch San Diego Bay Storm Drain	Sediment	PCBs	X

1. ~~PCBs = polychlorinated biphenyls~~

~~2.~~ See Finding 16 for details on interim remedial actions.

2. These wastes exceed the California Toxics Rule (CTR) water quality criteria.

3. TDY observed two significant seeps at the bottom of the 60-inch storm drain. Because these two seeps were located at the base of the storm drain, beneath the water line, TDY could not collect a discreet sample from the seeps.

4. Closed-circuit television (CCTV) footage of the 60-inch and 54-inch storm drains provided by the Port District and Airport Authority revealed several seeps that were not sampled.

5. The Port District and Airport Authority collected seep samples within the 60-inch storm drain. While the concentrations of VOCs are below the CTR water quality criteria, the presence of VOCs in these storm drains result in violations of Waste Discharge Prohibition No. 1 and No. 8 of the Basin Plan.

HUMAN HEALTH AND ECOLOGICAL RISKS

9. **HUMAN HEALTH RISKS FROM EXPOSURE TO WASTES IN SOIL AND GROUNDWATER ~~CONTAMINATION~~.** There are potential human health risks from the ~~chemicals of concern~~wastes discharged to soil and groundwater at the site. A Conceptual Site Model (CSM) shown in Attachment 4 illustrates potential ~~chemical~~constituent sources, release mechanisms, transport media, routes of ~~chemical~~constituent migration through the environment, exposure media, and potential receptors of concern at the site. This CSM is based on the current industrial land use and proposed future light industrial/commercial land use at the former TDY site. Based on this CSM, the human health risk assessment concluded the following:

a. VOCs are the primary risk drivers that could pose unacceptable heath risks to the future receptors of concern. The future receptors of concern consist of an industrial/commercial worker, a landscaper, a trench worker, and a construction worker. The potential exposure scenarios to these receptors include inhalation of indoor air and outdoor air vapors, inhalation of particulates, dermal contact with groundwater, and exposure via direct contact with soils.

b. Potential cumulative cancer and noncancer hazard estimates exceed target health goals using the maximum detected concentrations of VOCs, semi-VOCs, metals, PCBs, and TPH in soil, soil gas, and groundwater.[5]

9. **POTENTIAL PATHWAYS TO CONVAIR LAGOON AND ASSOCIATED HUMAN HEALTH AND ECOLOGICAL RISKS.** There are potential pathways from the former TDY site to Convair Lagoon that if complete, could pose a potential human health and/or ecological risk. A CSM is provided in Attachment 5 to illustrate the known chemical sources, transport mechanisms, exposure routes, and potential receptors of concern. This CSM is based on the current land use (industrial) and proposed future land use (light industrial/commercial) at the former TDY site. The potential transport and exposure pathways identified in the CSM include:

a. **Contaminated Groundwater to Convair Lagoon.** The discharge of groundwater through the bay bottom sediments to the bay water is an insignificant transport pathway. Therefore, this pathway does not contribute to any human health or ecological risks.

The migration rate of the trace PCB concentrations detected in groundwater near Convair Lagoon may be sufficiently slow to prevent discharge to Convair Lagoon in excess of the California Toxics Rule (CTR). Concentration trends; however, need to be established for these monitoring wells especially for well MWCL-2 where increasing PCB concentrations have been noted. No other chemicals of concern have consistently exceeded applicable CTR criteria in these wells.

b. **Contaminated Groundwater to the SWCS Backfill Material.** The migration of groundwater through the backfill material and discharge to Convair Lagoon is an insignificant transport pathway. Therefore, this pathway does not contribute to any human health or ecological risks. When the storm drains were installed, the trenches were backfilled with the soil excavated from the trenches, which is indistinguishable from the surrounding soil. Therefore, the

[5] This finding is supported by the information contained in the Site Wide Risk Assessment (Section 8.4, Pages 57-59).

backfill material does not create a preferential pathway for groundwater flow to Convair Lagoon.

c. **Contaminated Groundwater to the SWCS.** Groundwater seepage into the SWCS and discharge to Convair Lagoon is an insignificant transport pathway. Therefore, this pathway does not contribute to any human health or ecological risks.

All seeps found in the 54-inch and 60-inch Convair Lagoon storm drains were patched with concrete. Additionally, in order for this pathway to be significant, groundwater concentrations must exceed CTR criteria and intercept the 54-inch and/or 60-inch Convair Lagoon storm drains which are the only storm drains that are in contact with the water table. Hexavalent chromium and zinc concentrations in groundwater at the Building 158 AOC and PCB concentrations in groundwater at one well located in the corner of Building 120 are above CTR criteria. The contaminated groundwater plumes in these locations, however, have not migrated to the 54-inch and 60-inch Convair Lagoon storm drains.

d. **Contaminated Surface Soil to the SWCS.** Contaminated surface soil transported into the SWCS via storm water runoff is an insignificant transport pathway. Therefore, this pathway does not contribute to any human health or ecological risks.

As described in Finding 5, all of the laterals and storm drains are capped and will be removed as part of the site demolition. Furthermore, following demolition activities, clean fill will be used at the site and the surface will be covered with asphalt or other suitable surface treatment to minimize dust generation and runoff of surface sediment from the site.

e. **Contaminated Storm Drain Backfill Material to the SWCS.** The potential for contaminated backfill material to migrate through cracks and unsealed joints in the SWCS is an insignificant transport pathway. Therefore, this pathway does not contribute to any human health or ecological risks.

No PCBs or other chemicals of concern were detected in soil samples collected immediately adjacent to the 60-inch Convair Lagoon storm drain. Soil samples were collected at locations where (1) PCB-impacted sediments were detected in sediment samples collected from the joints within the 60-inch Convair Lagoon storm drain, and (2) visual evidence on the surface of the site indicated potential PCB impacts to soil. Additionally, there is no observed evidence from interior inspections of the 54-inch and 60-inch Convair Lagoon storm drains of sediment migration into the storm drains through the bell and socket joints.

f. **Contaminated Sediment Within the SWCS to Convair Lagoon.** This pathway is a significant transport pathway and, therefore, poses a risk to human health and ecological receptors in Convair Lagoon. A majority of the PCB-impacted sediment will be removed when the laterals and specific storm drains are removed during site demolition. The 54-inch and 60-inch Convair Lagoon storm drains, however, will remain in place after site demolition. The 54-inch Convair Lagoon storm drain has remained essentially free of sediment accumulation since the January 2006 cleanout. Significant PCB-contaminated sediments, however, remain within the 60-inch Convair Lagoon storm drain, which will be removed after demolition activities to prevent the discharge of the contaminated sediment to Convair Lagoon.

Removal of PCB-contaminated sediments from the 60-inch storm drain is also needed because there is a potential cancer risk and hazard exceedance for workers exposed to these sediments. The primary exposure route is through the incidental ingestion of sediment. This storm drain will be cleaned out to eliminate this potential risk. TDY has informed the City of San Diego of this potential risk and has advised the City that, prior to cleanout of the 60-inch Convair Lagoon storm drain; workers entering this storm drain need to take health and safety precautions to avoid exposure to sediment.[6]

10. **ECOLOGICAL RISKS.** An ecological risk assessment was not conducted for the former TDY site because there are no ecological receptors at the site that would potentially be exposed to contaminated soil and groundwater.

An ecological risk assessment is needed for Convair Lagoon and San Diego Bay to determine potential ecological risks from contaminated marine sediments polluted by discharges from the TDY site. A subsequent enforcement Order will require TDY to conduct this ecological risk assessment after Addendum No. 4 has been fully executed, preventing future contamination of San Diego Bay sediment from the TDY site.

b. Potential cumulative cancer and noncancer hazard estimates exceed target health goals using the maximum detected concentrations of VOCs, dibenz(a,h)anthracene, metals, PCBs, and TPH in soil, soil gas, and groundwater.[7]

10. **POTENTIAL PATHWAYS TO CONVAIR LAGOON AND ASSOCIATED HUMAN HEALTH AND ECOLOGICAL RISKS.** There are potential pathways from the former TDY site to Convair Lagoon that if complete, could pose a potential human health and/or ecological risk. A Conceptual Site Model (CSM) is provided in Attachment 5 to illustrate the known constituent sources, transport

[6] This finding is supported by the information contained in the Site Wide Risk Assessment (Appendix A, Sections 3 to 5, Pages A-4 to A-16).

[7] This finding is supported by the information contained in the Site Wide Risk Assessment (Section 8.4, Pages 57-59).

mechanisms, exposure routes, and potential receptors of concern. This CSM is based on the current land use (industrial) and proposed future land use (light industrial/commercial) at the former TDY site. The potential transport and exposure pathways identified in the CSM include:

a. **Groundwater Migration to Convair Lagoon.** The migration of groundwater to pore water in the bottom sediments of Convair Lagoon is a complete pathway. This pathway, however, does not contribute to any human health or ecological risks from exposure to, or ingestion of organism exposed to the bottom sediments.

   PCBs, copper, nickel, silver, thallium, zinc, and bis (2-ethylhexyl) phthalate have been detected in groundwater wells near the Convair Lagoon shoreline at concentrations that exceed CTR criteria. All constituents except PCBs, however, are likely not site-related. A screening transport groundwater flow model predicted that PCB concentrations would attenuate to levels below CTR criteria before reaching the pore water of Convair Lagoon bottom sediments. TDY is responsible for continued monitoring of groundwater quality in the shoreline wells to determine if concentration trends increase over time.

b. **Preferential Pathway for Groundwater Migration through the SWCS Trench Backfill Material.** When the Convair Lagoon storm drains and San Diego Bay storm drains were installed, the trenches were backfilled with the soil excavated from the trenches, which is indistinguishable from the surrounding soil. Therefore, the backfill material does not create a preferential pathway for groundwater flow to Convair Lagoon.

c. **Groundwater Seepage into the SWCS.** Groundwater seepage into the SWCS and discharge to Convair Lagoon is a complete pathway. The 54-inch and 60-inch Convair Lagoon storm drains including the 30-inch storm drain that connects to the 54-inch (originates from the Airport property) are the only storm drains that are in contact with groundwater. Groundwater contour maps indicate that pollutants in groundwater intercept or have the potential to intercept these storm drains.

   All seeps found by TDY in the 54-inch and 60-inch Convair Lagoon storm drains were patched with concrete. Additional seeps containing VOCs, however, were found by the Port District and the Airport Authority in the 60-inch storm drain. The VOC concentrations are below CTR criteria for human consumption of marine organisms, therefore, the quality of the groundwater seeps support the beneficial uses of San Diego Bay. CCTV footage also revealed seeps within the 54-inch and 60-inch storm drains at the pipe joints. TDY is responsible for ensuring that the quality of the groundwater seeps within the 54-inch and 60-inch storm drains supports the beneficial uses of

San Diego Bay.

d. **Surface Soil Transport to the SWCS.** Surface soil transported into the SWCS via storm water runoff is an incomplete pathway. The onsite SWCS, currently does not receive storm water runoff from the site. Storm water runoff is collected, treated, and discharged to the City of San Diego's sanitary sewer. All laterals that receive storm water runoff from the site were capped with concrete where they connect to the Convair Lagoon and San Diego Bay storm drains. These laterals will be removed during the final site demolition. Additionally, all onsite segments of the 30-inch west and 30-inch east Convair Lagoon storm drains, and the 18-inch and 30-inch San Diego Bay storm drains will be removed during final site demolition. Currently, these storm drains are inactive and capped with concrete at the southern property boundary. The 54-inch and 60-inch storm drains are active and only receive storm water runoff from areas upstream of the site.

e. **Storm Drain Trench Backfill Material Transport into the SWCS.** The potential for trench backfill material to migrate through cracks and unsealed joints in the SWCS is an incomplete pathway. No PCBs or other constituents of concern were detected in soil samples collected immediately adjacent to the 60-inch Convair Lagoon storm drain. Therefore, even if backfill material migrated through pipe joints into the SWCS, the material would not contain PCBs or other constituents of concern. Soil sample locations were chosen based on the greatest likelihood of PCB impacts to soil. These locations were (1) where PCBs were detected in sediment samples collected from the joints within the 60-inch Convair Lagoon storm drain, and (2) where visual evidence on the surface along the 60-inch storm drain alignment indicated a potential PCB release to soil.

f. **Sediment Transport Within the SWCS to Convair Lagoon.** This pathway is a complete pathway and, therefore, poses a risk to human health and ecological receptors in Convair Lagoon. PCB-contaminated sediments remain within the 60-inch Convair Lagoon storm drain. There is evidence that the other storm drains may contain PCB-contaminated sediments as well.

   Removal of PCB-contaminated sediments from the 60-inch storm drain will also eliminate the potential cancer risk and hazard exceedance for workers exposed to these sediments. The primary exposure route is through the incidental ingestion of sediment. TDY has informed the City of San Diego of this potential risk and has advised the City that, prior to cleanout of the 60-inch Convair Lagoon storm drain; workers entering this storm drain need to

take health and safety precautions to mitigate exposure to potentially contaminated sediment.[8]

11. **ECOLOGICAL RISKS.** An ecological risk assessment was not conducted for the former TDY site because following demolition and redevelopment, there will be an incomplete pathway between ecological receptors at the site and residual constituents in soil and groundwater. Following demolition, approximately 6,300 cubic yards of clean fill will be used to bring the site up to grade. Upon completion of earthwork grading, the surface will be covered with asphalt or another suitable surface treatment to minimize dust generation and runoff of surface sediment from the site. The surface treatment will create a barrier between wildlife receptors and any residual constituents in soil and groundwater after site cleanup.

An ecological risk assessment is needed to determine potential risks from exposure to contaminated sediments discharged from the TDY site to Convair Lagoon and San Diego Bay. A subsequent enforcement Order will require TDY to conduct this ecological risk assessment.

PCB SOURCES

12. **PCB SOURCES.** Despite various SWCS cleanup efforts ~~of specific storm drains~~, PCB-contaminated sediments ~~continue to be found in parts~~remain in segments of the onsite and offsite SWCS and on top of the engineered sand cap in Convair Lagoon. A CSM is provided in Attachment 6 to illustrate the known PCB sources at the former TDY site and pathways for PCBs to be transported to the SWCS and Convair Lagoon. The PCB sources identified in the CSM include:

~~a.~~ **Building Materials**~~. These materials have weathered to varying degrees~~ **and** ~~have contributed to ongoing low to moderate PCB concentrations in surface sediment. These sources will be removed during site demolition.~~

~~b.~~ **Surface Sediment.** ~~Sediment accumulates across the surface of the site through a mixture of atmospheric deposition,~~ PCB-impacted surface sediments at the site are principally derived from the weathering of building ~~structures, and deposition of organic detritus from onsite landscaping. The onsite sources of PCBs to surface sediment will be removed during site~~ materials (paint, joint compound, and concrete including slabs and foundations). All building materials will be removed during site demolition eliminating this PCB source. Following demolition~~.~~

[8] This finding is supported by the information contained in the Site Wide Risk Assessment (Appendix A, Sections 3 to 5, Pages A-4 to A-16).

a. **~~SWCS Sediment.~~** ~~Despite several cleaning events conducted by TDY, elevated PCB concentrations continue to be detected in sediment samples collected~~, the site will be graded and the surface will be covered with a suitable surface treatment to minimize dust generation and runoff of surface sediment from the ~~onsite~~ site as discussed in Finding 11.

b. **SWCS**~~. The~~ **Sediment.** PCB-contaminated sediments remain in the SWCS. A majority of the PCB-impacted ~~sediment~~sediments will be removed when ~~the~~all laterals and ~~specific~~the onsite segments of the Convair Lagoon storm drains (with the exception of the 54-inch and 60-inch) and San Diego Bay storm drains are removed ~~by the Port District~~ during site demolition (as described in Finding 5). ~~The 54-inch and 60-inch Convair Lagoon storm drains, however, will remain following site demolition. The 54-inch Convair Lagoon storm drain has remained essentially free of sediment accumulation since the January 2006 cleanout.~~ Significant PCB-contaminated sediments~~,~~ ~~however,~~ remain within the 60-inch Convair Lagoon storm drain~~.~~, which will be removed after demolition activities to prevent the discharge of sediments to Convair Lagoon. Additionally, there is evidence that PCB-contaminated sediments may still exist within the other Convair Lagoon and San Diego Bay storm drains. As such, these storm drains need to be further investigated and cleaned out as necessary (54-inch and the offsite portions of the 30-inch west, 30-inch east, 18-inch, 30-inch storm).

c. **Soil.** PCB ~~impacts in~~-contaminated soil ~~are~~is not widespread ~~as shown in Attachment 7~~at the site. Site characterization data shows relatively few areas with localized PCB impacts. These areas have been largely addressed by interim removal actions as described in Finding 16.d~~.~~; however, remaining ~~impacts~~ impacted areas include ~~areas in the~~ Building 120 South AOC, Building 180 AOC, and an area in the vicinity of the 30-inch east storm drain excavation. These remaining PCB-impacted areas will be remediated as discussed in Finding 17.

~~e.~~ **Groundwater.** ~~Groundwater was sampled for PCBs site-wide in January 2010 as shown in Attachment 8~~PCB-contaminated groundwater is not widespread. Detectable concentrations of PCBs were found in only three locations. PCBs were detected in one on-site monitoring well, located southeast of Building 120. The well is adjacent to an area of known ~~soil PCB impacts~~PCB-contaminated soil in the vicinity of the 30-inch east storm drain. ~~Trace~~ Additionally, PCBs were detected in groundwater near a former machine foundation in the southern portion of Building 120. TDY will be responsible for remediating these two sources.

As discussed in Finding 10a, trace concentrations of PCBs have also been

detected in the Convair Lagoon shoreline monitoring wells ~~in the vicinity of Convair Lagoon.~~

d. . TDY is responsible for continued monitoring of groundwater quality in the shoreline wells to ensure that concentration trends do not increase over time.

e. **Storm Water.** Storm water samples were collected onsite ~~at designated monitoring locations during the~~ beginning in 2005~~-2009 monitoring period and during the first storm event of 2009-2010~~. PCBs were not detected in any of the storm water samples~~.~~[9]. Additionally, the onsite SWCS do not receive storm water runoff from the site. Storm water runoff is collected, treated, and discharged to the City of San Diego's sanitary sewer. This PCB source is negligible.[10]

ALTERNATIVE CLEANUP LEVELS

13. **TECHNOLOGICAL AND ECONOMIC FEASIBILITY TO CLEANUP TO BACKGROUND CONDITIONS.** State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304*, must be applied when setting cleanup levels for impacted media at the former TDY site if such media poses a risk to human health.[11] These media must be cleaned up to background conditions unless it would be technologically[12] or economically[13] infeasible to do so.

~~The table below~~Table 3 summarizes the results of the evaluation of cleaning up soil, groundwater, and sediment within the 60-inch Convair Lagoon storm drain to background conditions for ~~each chemical of concern~~the COCs described in Finding 7. As shown in ~~the table~~Table 3, it is infeasible to cleanup to background conditions for all ~~chemicals of concern~~COCs in soil and groundwater~~, but feasible to cleanup~~.

~~[9] This finding is supported by the information in the PCB Characterization Report (Executive Summary, page vii-x and pages 90-105).~~

[10] This finding is supported by the information in the PCB Characterization Report (Executive Summary, page vii-x and pages 90-105).

[11] The *Water Quality Control Plan for the San Diego Basin* does not designate any beneficial uses for the groundwater at the former TDY site. Cleanup levels, however, must still be established for contaminated soil and groundwater, and for sediment within the 60-inch Convair Lagoon storm drain to protect human health.

[12] Technological feasibility is determined by assessing available technologies, which have been shown to be effective in reducing the concentrations of the pollutants of concern.

[13] Economic feasibility is an objective balancing of the incremental benefit of attaining further reductions in the concentrations of constituents of concern as compared with the incremental cost of achieving those reductions. The evaluation of economic feasibility includes consideration of current, planned, or future land use, social, and economic impacts to the surrounding community including property owners other than the discharger. Economic feasibility does not refer to the dischargers' ability to finance cleanup. Availability of resources is considered in the establishment of reasonable compliance schedules.

For the ~~PCB-impacted~~purpose of this Addedum, the background condition for contaminated sediments in the 60-inch Convair Lagoon storm drain ~~to background conditions~~is no visible sediments in the storm drain. Complete removal of all visible sediments in the 60-inch storm drain is technologically and economically feasible~~ and by doing so, background conditions for PCBs in sediments will be achieved~~. Therefore, the cleanup level for PCB-~~impacted~~contaminated sediments in the 60-inch Convair Lagoon storm drain ~~should be~~is set at the background conditions.[14]

Table 3 - Feasibility to Cleanup to Background Conditions.

Soil			
	Technologically Feasible	Economically Feasible	Feasible to Cleanup to Background
PCBs	Yes	No	No
VOCs	Yes	No	No
TPH	Yes	No	No
Metals	Yes	No	No
Groundwater			
	Technologically Feasible	Economically Feasible	Feasible to Cleanup to Background
PCBs	Yes	No	No
VOCs	Yes	No	No
Dibenz(a,h)anthracene	Yes	No	No
TPH	Yes	No	No
Metals	Yes	No	No
Sediment within 60" Convair Lagoon Storm Drain			
	Technologically Feasible	Economically Feasible	Feasible to Cleanup to Background
PCBs	Yes	Yes	Yes

14. **ALTERNATIVE CLEANUP LEVELS.** It is economically infeasible to cleanup PCB~~-, VOC-~~s, VOCs, dibenz(a,h)anthracene, TPH~~-~~, and metals~~-impacted~~ in soil and groundwater to background conditions as shown in Table 3. Alternative cleanup levels, therefore, are appropriate for these ~~chemicals of concern~~COCs. Resolution No. 92-49 requires that alternative cleanup levels be set at the lowest levels that are technologically and economically achievable pursuant to the California Code of Regulations, Title 23, section 2550.4(d). Alternative cleanup levels must be consistent with maximum benefit to the people of the state, not unreasonably affect present and anticipated beneficial uses, and not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards.

[14] This finding is supported by the information contained in the RI/FS (Section 5.3, pages 32-34) and Technical Memorandums: Evaluation of Alternate Cleanup Goals for Metals and Evaluation of Alternate Cleanup Goals for VOCs and TPH.

The ~~maximum concentrations detected onsite and the~~ alternative cleanup levels for the ~~chemicals of concern in soil and groundwater at the former TDY site~~ COCs are shown in ~~the tables below. While some of the alternative~~ Table 4. With the exception of total PCBs in soil, the cleanup levels are ~~higher than the maximum detected concentrations found at the site, these~~ set at the Risk Based Concentrations shown to be protective of human health for future site workers. The alternative cleanup level for PCBs in soil was determined by an economic feasibility analysis as discussed in Finding 14.a.

Many constituents other than the COCs have been detected at the site. Alternative cleanup levels ~~are still needed in this Addendum~~were not established for these constituents because they were detected at maximum concentrations well below the RBCs for the site, and therefore, would not contribute to any human health risks. If new areas of concern ~~may be~~ are discovered during ~~the~~ site demolition~~. The concentrations detected in~~, TDY should sample these ~~newly identified~~ areas ~~of concern may exceed both~~for all wastes discharged at the ~~original maximum detected concentrations and alternative cleanup levels.~~site (PCBs, VOCs, SVOCs, PAHs, TPH and metals) not just the COCs to ensure that any non-COCs are cleaned up if they exceed an RBc.

Table 4 - Onsite Maximum Detected Concentrations and Alternative Cleanup Levels for ~~PCBs, VOCs, and TPH~~COCs in Soil and Groundwater.

	Soil (mg/kg)		Groundwater (ug/L)	
	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)
PCBs (3)	~~290~~	~~1.0~~	~~68.3~~	~~0.013~~
~~**VOCs**~~ **Total**	290	1		
~~1,1,1 Trichloroethane~~ **Aroclor 1016**	~~0.051~~--	~~240~~--	~~45~~1.9	~~80,000~~1.1
~~1,1,2 Trichloroethane~~ **Aroclor 1242**	~~not detected~~--	~~6.0~~--	~~9.~~63 (4)	~~1,200~~0.14
~~1,1 Dichloroethane~~ **Aroclor 1248**	~~0.003~~--	~~25~~--	~~120~~18 (5)	~~35,000~~0.13
~~1,1 Dichloroethene~~ **Aroclor 1254**	~~ND~~1.7	~~12~~--	~~540~~not detected	~~4,800~~0.078
~~1,2 Dichloroethane~~ **Aroclor 1260**	~~ND~~--	~~2.0~~--	~~20~~5.3 (5)	~~360~~0.013
~~Chloroethane~~**VOCs**	~~ND~~	~~31~~	~~0.30~~	~~830,000~~
~~cis-1,2 Dichloroethene~~ 1,2,4 Trimethylbenzene	~~0.96~~16	11	~~57,000~~14	~~2,400~~460
~~Tetrachloroethene~~ cis-1,2 Dichloroethene	~~220~~1.8	~~6.0~~11	~~240~~57,000	~~320~~2,400
Naphthalene	18	17	310	79
Tetrachloroethene	1,000	6	240,000	320
Trichloroethene	10	25	21,000	260
Vinyl Chloride	0.~~05~~4	0.28	25,000	500

	Soil (mg/kg)		Groundwater (ug/L)	
	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)
Dibenz(a,h)anthracene	0.08	1.8	0.49	0.26
TPH				
Aliphatic C5-C8	~~(3)~~540	8,500	~~(4)~~50,000	13,000
Aliphatic C9-C18	~~(3)~~7,000	21,000	~~(4)~~46,000	33,000
~~Aliphatic C≥19~~ Aromatic C9-C18	~~(3)~~7,000	~~400,000~~6,200	~~(4)~~46,000	~~660~~10,000
Aromatic C~~5-C8~~>19	~~(3)~~73,000	~~not applicable~~6,400	~~(4)~~610,000	~~not applicable~~10,000
~~Aromatic C9-C18~~**Metals**	~~(3)~~	~~6,200~~	~~(4)~~	~~10,000~~
~~Aromatic C≥19~~ Hexavalent Chromium	~~(3)~~170 (6)	~~6,400~~35	~~(4)~~760,000 (7)	~~10~~23,000
Total Chromium (8)	2,200	< 2,500	880,000 (9)	23,000,000

~~1. Based on site-wide data collected in 2003 (Site Characterization Report).~~

1. Based on Site-Wide Risk Assessment (2010) except where noted.
2. The alternative cleanup levels are supported by the information contained in the RI/FS (Section 5.2 pages 28-32).

~~2. TPH results for soil were not speciated between aliphatic and aromatic hydrocarbons. The onsite maximum detected concentrations for soil are as follows: C5-C8 = 1,682 mg/kg, C9-C18 = 25,100 mg/kg, and C≥19 = 73,050 mg/kg.~~

~~3. TPH results for groundwater were not speciated between aliphatic and aromatic hydrocarbons. The onsite maximum detected concentrations for groundwater are as follows: C5-C8 = 50,000 ug/L, C9-C18 = 75,510 ug/L, and C≥19 = 708,000 ug/L.~~

~~Table 5 - Onsite Maximum Detected Concentrations and Alternative Cleanup Levels for Metals.~~

	~~Soil (mg/kg)~~		~~Groundwater (mg/L)~~	
	~~Onsite Maximum Detected Concentration (1)~~	~~Alternative Cleanup Level (2)~~	~~Onsite Maximum Detected Concentration (1)~~	~~Alternative Cleanup Level (2)~~
~~**Metals**~~				
~~Antimony~~	~~8.5~~	~~120~~	~~3 (3)~~	~~6.2~~
~~Arsenic~~	~~23 (3)~~	~~2.8~~	~~0.0071 (4)~~	~~4.6~~
~~Barium~~	~~440 (3)~~	~~3,100~~	~~0.49 (3)~~	~~1,100~~
~~Beryllium~~	~~ND~~	~~47~~	~~0.01 (4)~~	~~31~~
~~Cadmium~~	~~6.8~~	~~99~~	~~0.01 (4)~~	~~7.7~~
~~Chromium~~	~~1,390~~	~~450,000~~	~~880~~	~~23,000~~
~~Chromium, Hexavalent~~	~~170~~	~~35~~	~~700~~	~~23~~
~~Cobalt~~	~~100~~	~~140~~	~~0.017~~	~~310~~
~~Copper~~	~~200~~	~~12,000~~	~~0.0055 (4)~~	~~620~~
~~Cyanide, Amenable~~	~~1.0 (4)~~	~~4,800~~	~~ND~~	~~310~~

	Soil (mg/kg)		Groundwater (mg/L)	
	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)	Onsite Maximum Detected Concentration (1)	Alternative Cleanup Level (2)
Cyanide, Total	1.7 (4)	4,800	0.01 (4)	310
Mercury	0.23	79	ND	4.6
Molybdenum	10	1,500	0.29	77
Nickel	170	340	0.45	1,500
Selenium	30	1,500	1.2 (4)	77
Silver	2.3 (4)	1,500	ND	77
Thallium	ND (4)	20	0.002	1.0
Vanadium	70 (4)	300	0.13	15
Zinc	710	90,000	0.10	7,700

1. Based on site-wide data collected in 2003 (Site Characterization Report).
2. The alternative cleanup levels are supported by the information contained in the RI/FS (Section 5.2 pages 28-32).
3. All samples in the 2003 dataset are within the site-specific background concentration (Site Characterization Report, Appendix A).
4. There were insufficient detections in the 2003 dataset to determine the site-specific background concentration (Site Characterization Report, Appendix A).

a. **Alternative Cleanup Levels are the Lowest Levels that are Economically Feasible.** The alternative cleanup level for PCBs in soil is based on an economic feasibility study that showed that soil with a PCB concentration greater than 1.0 mg/kg was economically feasible to excavate from the site. This cleanup level for soil is lower than the PCB risk-based concentrations that are protective of human health as determined in the RI/FS. The alternative cleanup level for PCBs in groundwater is based on a risk-based concentration that will not cause an unreasonable impact to human health. This alternative cleanup level is the lowest level that is economically feasible to attain because the remedial alternative for cleaning up PCBs in both soil and groundwater is excavation. Excavating PCB-impacted soil to the alternative soil cleanup level should result in achieving the alternative cleanup level in groundwater. Excavating PCB-impacted soil to achieve a lower soil cleanup level is economically infeasible; therefore, the groundwater alternative cleanup level is the lowest cleanup level that is economically achievable.[15]

The alternative cleanup levels for metals, VOCs, and TPH in soil and groundwater are based on risk-based concentrations that will not cause an unreasonable impact to human health. These alternative cleanup levels are the lowest levels that are economically feasible to attain. Furthermore, for VOCs and TPH in soil and groundwater, concentrations are expected to continue to naturally degrade below the alternative cleanup levels without

[15] This finding is supported by the information contained in the RI/FS (Section 5.3, pages 32-34).

~~additional remedial action, eventually achieving background conditions.~~[16]

3. PCB value for soil is total PCBs concentration. PCBs values for groundwater are individual Aroclor concentrations due to the significant differences in slope factors for the aroclors.
4. Based on 3rd Quarter 2010 Groundwater Monitoring Report.
5. Based on 1st Quarter 2010 Groundwater Monitoring Report.
6. Based on the 2009 Interim Removal Action Status Report.
7. Based on 3rd Quarter 2009 Groundwater Monitoring Report.
8. Total chromium concentrations are expected to increase due to the in situ treatment and breakdown of hexavalent chromium to other forms of chromium. Therefore, soil and groundwater cleanup levels are established for total chromium even though current on site maximum concentrations do not exceed RBCs.
9. Based on 1st Quarter 2009 Groundwater Monitoring Report.

a. **Alternative Cleanup Levels are the Lowest Levels that are Economically Feasible.** An economic feasibility analysis showed that, with the exception of total PCBs in soil, the alternative cleanup levels are the lowest levels that are economically feasible to achieve in soil and groundwater at the site. The cleanup level for total PCBs in soil was set at 1.0 mg/kg, a concentration below the RBC. The analysis showed that excavation of soil to this concentration at the site was economically feasible.

   The alternative cleanup level for PCBs in groundwater is the lowest level that is economically feasible to attain because the remedial alternative for cleaning up PCBs in both soil and groundwater is excavation of contaminated soil. Excavating PCB-contaminated soil to the alternative soil cleanup level is expected to achieve the alternative cleanup level in groundwater..[17] Excavating PCB-contaminated soil to achieve a lower groundwater cleanup level is economically infeasible.

   Although alternative cleanup levels were set for VOCs and TPH in soil and groundwater, concentrations are expected to continue to naturally degrade below the alternative cleanup levels without additional remedial action, eventually achieving levels near to background conditions.[18]

b. **Alternative Cleanup Levels are Consistent with Water Quality Control Plans and Policies.** The *Water Quality Control Plan for the San Diego Basin* identifies the location of the former TDY site as a portion of the Lindbergh Hydrologic Sub Area (8.21) of the San Diego Mesa Hydrologic Area within the Pueblo San Diego Hydrologic Unit. Groundwater in the Lindbergh Hydrologic Sub Area has no designated beneficial uses and has been exempted from

[16] ~~This finding is supported by the information contained in the technical memorandums: Evaluation of Alternate Cleanup Goals for Metals and Evaluation of Alternate Cleanup Goals for VOCs and TPH.~~
[17] This finding is supported by the information contained in the RI/FS (Section 5.3, pages 32-34).
[18] This finding is supported by the information contained in the technical memorandums: Evaluation of Alternate Cleanup Goals for Metals and Evaluation of Alternate Cleanup Goals for VOCs and TPH.

the municipal use designation by the San Diego Water Board. Additionally, the alternative cleanup levels are protective of current and future onsite human receptors of concern.

c. **Alternative Cleanup Levels Will Not Unreasonably Affect Present and Anticipated Beneficial Uses of the Site.** Groundwater beneath and adjacent to the former TDY site has no designated beneficial uses and has been exempted from the municipal use designation by the San Diego Water Board. Additionally, the alternative cleanup levels are protective of current and future onsite human receptors of concern.

d. **Alternative Cleanup Levels are Consistent with the Maximum Benefit to the People of the State.** The incremental benefit of further reducing ~~chemical~~constituent concentrations below alternative cleanup levels would be offset by the increased (1) traffic congestion near the Airport due to the truck trips, (2) risk from traffic accidents and operation of heavy machinery, (3) fuel consumption and greenhouse gas emissions, (4) demand on finite landfill capacity, and (5) pumping, treatment, and disposal of large quantities of water.[19]

REMEDIAL ACTION PLAN

15. **REMEDIAL ACTION PLAN.** TDY submitted a Remedial Action Plan (RAP) dated May 30, 2007 to the San Diego Water Board pursuant to Directive E.1~~.~~ of CAO No. R9-2004-0258. This RAP is outdated mainly because new areas of concern requiring remedial action have been identified and the selected remedial alternative for certain areas of concern have been modified. A new RAP is needed to account for these and other changes.

INTERIM REMEDIAL ACTIONS

16. **INTERIM REMEDIAL ACTIONS.** Pursuant to Directive C of CAO No. R9-2004-0258, the following interim remedial actions have been conducted at the former TDY site:

a. **Storm Drain Cleanout.** As an interim action to prevent further discharges of PCB-impacted sediments into Convair Lagoon, specific sections of the onsite SWCS were cleaned out from June to October 2006. Documentation of the final results of storm drain cleanout activities was accomplished by written

[19] This finding is supported by the information contained in the RI/FS (Section 5.3, pages 32-34) and by the technical memorandums: Evaluation of Alternate Cleanup Goals for Metals and Evaluation of Alternate Cleanup Goals for VOCs and TPH.

documentation of visual inspections of the storm drains, via daily field notes, digital photos and video clips.[20]

b. **Filter Socks and Storm Water Diversion Systems.** Following the 2006 storm drain cleanout, filter socks were installed on all laterals connected to the 54-inch and 60-inch Convair Lagoon storm drains in February 2007 as an interim action to prevent further discharges of PCB-impacted sediments into the onsite SWCS and Convair Lagoon. Additionally, two diversion systems were installed to prevent further discharges of sediment from the laterals with filter socks containing elevated PCB concentrations in sediment samples.[21]

c. **Site Sweeping.** The TDY site has been swept annually from 2006-2008 in areas known to historically have PCBs in surface sediment and in areas which accumulated or had the potential to accumulate in the vicinity of Best Management Practices (BMPs) at specific catch basins.[22]

d. **Targeted Excavations.** TDY conducted targeted excavations within the following areas:

i. **Test Cell #4/Area D AOPC.** Soil confirmation samples collected from the excavation showed that TDY cleaned up this AOC to the alternative cleanup levels for TPH; the ~~chemical~~constituent of concern for this AOC.

ii. **Building 131/242 AOC.** Soil confirmation samples collected from the excavation showed that TDY cleaned up this AOC to the alternative cleanup levels for VOCs; the ~~chemical~~constituent of concern for this AOC.

iii. **Building 156 AOC.** Soil confirmation samples collected from the excavation showed that TDY cleaned up this AOC to the alternative cleanup levels for VOCs and PCBs; the ~~chemical~~constituent of concern for this AOC.

iv. **Building 158 AOC.** Soil confirmation samples collected from the Building 158 excavation showed exceedances of the alternative cleanup level for hexavalent chromium and indicated the potential extent of the hexavalent chromium impacts may be too large to address efficiently prior to building demolition. Additional remedial actions are needed following building demolition.

[20] This finding is supported by the information contained in the PCB Characterization Report (Section 3.6, pages 59-87).
[21] This finding is supported by the information contained in the PCB Characterization Report (Section 4.3.2, pages 92-93 and Section 4.3.3, pages 93-94).
[22] This finding is supported by the information contained in the PCB Characterization Report (Section 3.8, pages 88-89).

v. **Building 102 AOC.** Soil confirmation samples collected from the excavation showed that TDY cleaned up this AOC to the alternative cleanup levels for VOCs and TPH. An additional excavation, however, is needed to remove TPH-impacted soil to the ~~east~~west of the initial Building 102 targeted excavation. This additional excavation is needed following building demolition.

vi. **Building 120 South AOC.** Results of soil confirmation samples collected from the Building 120 South AOC excavation as well as from step out borings and test pits (1) exceeded the alternative cleanup level for TPH, and (2) indicated concentrations of PCBs up to approximately 7 mg/kg in light non-aqueous phase liquids (LNAPL) within the soil media. Additional remedial actions to address these impacts are needed following building demolition.

vii. **Building 180 AOC.** Results of soil confirmation samples collected from the excavation exceeded the alternative cleanup level for TPH and PCBs. Additional remedial actions are needed following building demolition.[23]

e. **Ferrous Sulfate Injections.** Ferrous sulfate was injected into the groundwater at Building 158 AOC to induce hexavalent chromium reduction. Groundwater monitoring results indicated that while hexavalent chromium concentrations were initially reduced in groundwater, concentrations have rebounded to pre-injection concentrations. Additional remedial actions to address hexavalent chromium impacts in groundwater are needed following building demolition.[24]

f. **Enhanced In-Situ Bioremediation.** Pilot studies were performed in the Building 131/242 AOC, Building 130/166 AST/120/121 AOC, Former Maintenance Yard AOC, and Building 180 AOC to evaluate the effectiveness of Enhanced In-Situ Bioremediation (EISB) in reducing VOC concentrations in groundwater and if present, dense non-aqueous phase liquid (DNAPL). Emulsified vegetable oil (EVO) and KB-1 microbial culture were injected into the subsurface using direct push technology. Monitoring data collected after the injections indicate that the natural biodegradation rates were significantly enhanced by the EISB injections and that the alternative cleanup levels ~~could potentially~~were be achieved over the majority of the pilot study area over an approximate 2-year timeframe. While there is insufficient data at this point to evaluate natural degradation rates and time to reach background ~~after~~throughout the pilot ~~studies~~study area, VOCs concentrations have been

[23] This finding is supported by the information contained in the Interim Removal Action Status letter and the Draft Targeted Excavation and EISB Injection Work Plan in Finding 17.a.
[24] This finding is supported by the information contained in the Interim Removal Action Status letter, RI/FS (Section 4.3.2.4, pages 46-47 and Section 6.4.3, pages 66-75), and Draft Building 158 AOC Additional Investigation Work Plan in Finding 17.b.

reduced to background over the majority of the pilot study area and are expected to continue to be reduced ~~beyond the alternative cleanup levels~~in the balance of the pilot study area, ultimately reaching background conditions.[25]

17. **INTERIM REMEDIAL ACTION WORK PLANS.** TDY submitted the following ~~draft~~ work plans to address the remaining soil and groundwater impacts at the former TDY site:

a. ~~**Draft**~~ **Targeted Excavation and EISB Injection Work Plan (dated October 29, 2010~~) and~~), Addendum #1 (dated November 22, 2010), and Addendum #2 (dated February 11, 2011).** This work plan presents the scope of work to (1) remove impacted soils at ~~AOCs needing additional remedial actions identified in Finding 16 and at other AOCs and AOPCs identified in the RI/FS~~the Former Explosives Area AOPC, Building 102 AOC, Building 120 West AOC, Building 120 South AOC, Building 120 South Test Pit Area AOC, Building 222/228 AOPC, Building 180 AOC, and an area in the vicinity of the 30-inch east storm drain excavation., and (2) conduct additional enhanced in situ bioremediation (EISB) injections in the vicinity of Building 130/166AST/120/121 AOC. TDY is in the process of implementing this work plan based on the remediation schedule in the work plan. TDY needs to submit an Interim Action Completion Report.

b. ~~**Draft**~~ **Building 158 AOC Additional Investigation Work Plan (dated October 29, 2010).** This work plan presents the scope of work to remediate hexavalent chromium impacts in soil and groundwater. TDY has completed the scope of work and needs to submit an Interim Action Completion Report.

c. ~~**Draft Contingency**~~**Interim Response Plan (dated ~~August 23~~October 20, 2010).** This plan presents the proposed approach~~, as needed~~ during site demolition~~, for~~ to (1) ~~evaluating~~evaluate a new ~~potential environmental~~area of concern or a previously undocumented underground storage tank, (2) ~~implementing~~ implement storm water management measures at newly identified remedial areas, and (3) implement~~ing~~ an expedited environmental assessment and presumptive remedial solution, if needed~~, during the site demolition.~~

c. ~~These work plans should include remediation schedules detailing the sequence of events and time frame for each activity based on the shortest practicable time required to complete each activity, and upon~~. TDY is

[25] This finding is supported by the information contained in the Interim Removal Action Status letter, RI/FS (Section 4.3, pages 18-21; Section 6.3.2.3, pages 45-46; Section 6.4.1, pages 51-60; Section 6.4.6, pages 85-94; Section 6.4.7, pages 95-103; and Section 6.4.8, pages 103-109), ~~and~~ the Draft Targeted Excavation and EISB Injection Work Plan in Finding 17.a, and the 3rd Quarter 2010 Groundwater Monitoring Report.

awaiting approval of this plan by the San Diego Water Board~~, should be implemented by TDY~~.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

18. **CALIFORNIA ENVIRONMENTAL QUALITY ACT**. This Order requires submittal of a detailed RAP for San Diego Water Board approval that addresses cleanup activities at the former TDY site. Although the RAP has not yet been submitted, the proposed activities under the RAP are expected to include remedial alternatives such as subsurface bioremediation injections and excavations at known areas of contamination. This Order also requires~~, if needed,~~ implementation of a Contingency Plan, if needed, for additional remedial action in the event that demolition activities reveal new ~~environmental~~ areas of concerns or previously undocumented underground storage tanks. The San Diego Water Board adopted a negative declaration on ~~February 9~~April 13, 2011, in accordance with California Environmental Quality Act (Public Resources Code, section 21000 et seq.) for approval of the activities expected to be included in the detailed RAP and Contingency Plan identified in this Order. In the negative declaration, the San Diego Water Board certifies that the proposed project will not have significant effects on the environment.

IT IS HEREBY ORDERED that, pursuant to California Water Code sections 13267 and 13304, CAO No. R9-2004-0258 is amended as follows:

~~1. **ABATE DISCHARGES.** TDY shall terminate all illicit discharges from the former TDY site, if any, to the storm water conveyance system.~~

1. **CORRECTIVE ACTION.** TDY shall take all corrective actions necessary to remediate the contaminated soil and groundwater at the former TDY site, and remediate the contaminated sediment in the 60-inch Convair Lagoon storm drain and energy dissipation channel to the cleanup levels described below.

   a. **Soil and Groundwater.** TDY shall remediate PCB-, VOC-, TPH-, and metals-impacted soil and groundwater to the following concentrations:

~~**Table 6 - Soil and Groundwater Cleanup Levels for PCBs, VOCs, and TPH.**~~

	~~**Cleanup Levels**~~

	Soil (mg/kg)	Groundwater (ug/L)

PCBsTable 5 - Soil and Groundwater Cleanup Levels for Constituents of Concern.

=

Constituent of Concern	Soil Cleanup Levels (mg/kg)	Groundwater Cleanup Levels (ug/L)
PCBs		
Total	1.0	0.013 --
VOCs Aroclor 1016	--	1.1
1,1,1 Trichloroethane Aroclor 1242	240 --	80,0000.14
1,1,2 Trichloroethane Aroclor 1248	6.0 --	1,2000.13
1,1 Dichloroethane Aroclor 1254	25 --	35,0000.078
1,1 Dichloroethene Aroclor 1260	12 --	4,8000.013
1,2 Dichloroethane**VOCs**	2.0	360
Chloroethane 1,2,4 Trimethylbenzene	3111	830,000460
cis-1,2 Dichloroethene	11	2,400
Tetrachloroethene Naphthalene	6.017	32079
Tetrachloroethene	6	320
Trichloroethene	25	260
Vinyl Chloride	0.28	500
Dibenz(a,h)anthracene	0.49	0.26
TPH		
Aliphatic C5-C8	8,500	13,000
Aliphatic C9-C18	21,000	33,000
Aliphatic C≥19	400,000	660,000
Aromatic C5-C8	not applicable	not applicable
Aromatic C9-C18	6,200	10,000
Aromatic C≥19	6,400	10,000

Table 7 - Soil and Groundwater Cleanup Levels for Metals.

	Cleanup Levels	
	Soil (mg/kg)	Groundwater (mg/L)
Metals		
Antimony Hexavalent Chromium	12035	6.223,000

	Cleanup Levels	
	Soil (mg/kg)	Groundwater (mg/L)
~~Arsenic~~ Total Chromium	< 2~~.8~~,500	~~4.6~~23,000,000
~~Barium~~	~~3,100~~	~~1,100~~
~~Beryllium~~	~~47~~	~~31~~
~~Cadmium~~	~~99~~	~~7.7~~
~~Chromium~~	~~450,000~~	~~23,000~~
~~Chromium, Hexavalent~~	~~35~~	~~23~~
~~Cobalt~~	~~140~~	~~310~~
~~Copper~~	~~12,000~~	~~620~~
~~Cyanide, Amenable~~	~~4,800~~	~~310~~
~~Cyanide, Total~~	~~4,800~~	~~310~~
~~Mercury~~	~~79~~	~~4.6~~
~~Molybdenum~~	~~1,500~~	~~77~~
~~Nickel~~	~~340~~	~~1,500~~
~~Selenium~~	~~1,500~~	~~77~~
~~Silver~~	~~1,500~~	~~77~~
~~Thallium~~	~~20~~	~~1.0~~
~~Vanadium~~	~~300~~	~~15~~
~~Zinc~~	~~90,000~~	~~7,700~~

b. **60-INCH CONVAIR LAGOON STORM DRAIN AND ENERGY DISSIPATION CHANNEL.** TDY shall remediate PCB-contaminated sediments within the 60-inch Convair Lagoon storm drain and the energy dissipation channel to background conditions. Cleanup to background conditions shall be achieved by removing all visible sediment, to the extent practicable, within the 60-inch storm drain ~~(end of the storm drain where it discharges into Convair Lagoon to 25-feet north of the property line)~~ and the energy dissipation channel. Cleanup to background conditions shall be verified by daily field notes, digital photos, video clips, and 3rd party inspection.

2. **REMEDIAL ACTION PLAN.** TDY shall submit a RAP to the San Diego Water Board on or before 5:00 p.m. on ~~April 11~~June 30, 2011 unless otherwise directed in writing by the San Diego Water Board. The corrective actions in the RAP shall be capable of achieving the cleanup levels in Directive 2 and, at a minimum, contain the following ~~information:~~elements:

a. **Selected Remedial Alternatives.** A detailed description of all corrective actions selected to achieve the cleanup levels in Directive 2. Selected corrective actions shall include~~:~~

a. ~~The~~ , at a minimum, the recommended remedial alternatives described in the RI/FS.[26]

~~Monitoring PCB concentrations in monitoring~~

b. **Convair Lagoon Shoreline Monitoring Wells.** A plan to monitor wells MWCL-1, MWCL-2, MWCL-3, MWCL-4, MWCL-5, MWCL-6, MWCL-7, and MWCL-8 located near Convair Lagoon in order to establish ~~PCB~~ concentration trends in groundwater. The plan shall include an evaluation of the risks to the beneficial uses of San Diego Bay if the trends increase. Monitoring shall be conducted at intervals adequate to assess concentration trends in groundwater.

c. **54-inch and 60-inch Storm Drain Seep Monitoring.** A plan to monitor the quality of the groundwater seeps within the 54-inch and 60-inch storm drains. The plan shall include actions to cleanup or abate the seeps if the water quality of the seeps exceeds CTR criteria. Monitoring shall be conducted at intervals adequate to characterize the water quality of the seeps.

d. **Sampling and Analysis Plan**. A Sampling and Analysis Plan defining (i) sample and data collection methods to be used for the project, (ii) a description of the media and parameters to be monitored or sampled during the remedial action, and (iii) a description of the analytical methods to be utilized and an appropriate reference for each.

e. **Convair Lagoon and San Diego Bay Storm Drain Investigation and Cleanup.** A plan to investigate the Convair Lagoon and San Diego Bay storm drains to identify, and if found, cleanup PCB-contaminated sediments to background conditions. The plan shall include the following storm drains:

i 54-inch Convair Lagoon storm drain,

ii Offsite sections of the 30-inch west and 30-inch east Convair Lagoon storm drains (from the concrete cap located at the southern property boundary to the end of pipe in Convair Lagoon), and

iii Offsite sections of the 18-inch and 30-inch San Diego Bay storm drains (from the concrete cap located at the southern property boundary to the end of pipe in Convair Lagoon).

f. **Monitoring Program.** A monitoring program capable of demonstrating the effectiveness of the selected remedial alternatives and compliance with the alternative cleanup levels. Groundwater monitoring shall be conducted for a period of at least one year to verify that the cleanup levels in Directive 2.a.

[26] Remedial Investigation/Feasibility Study, 2701 North Harbor Drive, San Diego, California, Geosyntec Consultants (dated August 16, 2010).

have been achieved and maintained, and shall begin after the completion of active remedial action measures by TDY. Monitoring shall be conducted at intervals ~~proposed by TDY and agreed to by the San Diego Water Board. The proposed intervals shall be~~ adequate to assess compliance with the alternative cleanup levels.

g. **Remediation Schedule.** A schedule detailing the sequence of events and time frame for each activity based on the shortest practicable time required to complete each activity.

3. **RAP IMPLEMENTATION.** Upon approval of the RAP by the San Diego Water Board, TDY shall implement the RAP in accordance with the remediation schedule.

~~4. **WORK PLANS.** TDY shall submit the following work plans to the San Diego Water Board on or before 5:00 p.m. on March 30, 2011 unless otherwise directed in writing by the San Diego Water Board. The corrective actions in the work plans shall be capable of achieving the cleanup levels in Directive 2 and, at a minimum, contain remediation schedules detailing the sequence of events and time frame for each activity based on the shortest practicable time required to complete each activity.~~

~~a. Targeted Excavation and EISB Injection Work Plan.~~

~~b. Building 158 AOC Additional Investigation Work Plan.~~

~~c. Contingency Plan.~~

4. ~~WORK~~**DRAFT INTERIM RESPONSE PLAN IMPLEMENTATION.** ~~Upon~~TDY shall implement the Draft Interim Response Plan upon approval by the San Diego Water Board, ~~TDY shall implement the work plans in Directive 5 in accordance with the remediation schedules.~~

5. **INTERIM REMEDIAL ACTION COMPLETION REPORTS.** TDY shall submit a Interim Action Completion Reports for the scope of work completed for the following work plans:

a. **Targeted Excavation and EISB Injection Work Plan (dated October 29, 2010) and Addendum #1 (dated November 22, 2010)), and Addendum #2 (dated February 11, 2011.**

b. **Building 158 AOC Additional Investigation Work Plan (dated October 29, 2010).**

Both Interim Remedial Action Completion Reports must be received by the San Diego Water Board on or before 5:00 p.m. on June 13, 2011.

6. **MODIFICATION TO DIRECTIVE F.1**

Directive F.1 as modified by Addendum No. 3 is further modified as follows:

Final Cleanup and Abatement Completion Report. TDY shall submit a final Cleanup and Abatement Completion Report verifying completion of the Remedial Action Plan (RAP). The final Cleanup and Abatement Completion Report shall be received by the San Diego Water Board within 90 days of completion of all activities in the remediation schedule. ~~Groundwater monitoring shall be conducted for a period of at least one year to verify that cleanup has been achieved and shall begin after the completion of remedial action measures by TDY and be conducted at intervals proposed by TDY and agreed to by the San Diego Water Board.~~ The report shall provide a demonstration, based on a sound technical analysis, that:

a. Cleanup levels for all waste constituents are attained at all monitoring points and throughout the zone affected by the waste constituents, including any portions thereof that extend beyond the Site boundary; ~~and~~

b. Illicit waste discharges related to TDY's historical activities into and through the storm water conveyance system (SWCS), offsite MS4s, and/or receiving waters at the Site are terminated~~.~~; and

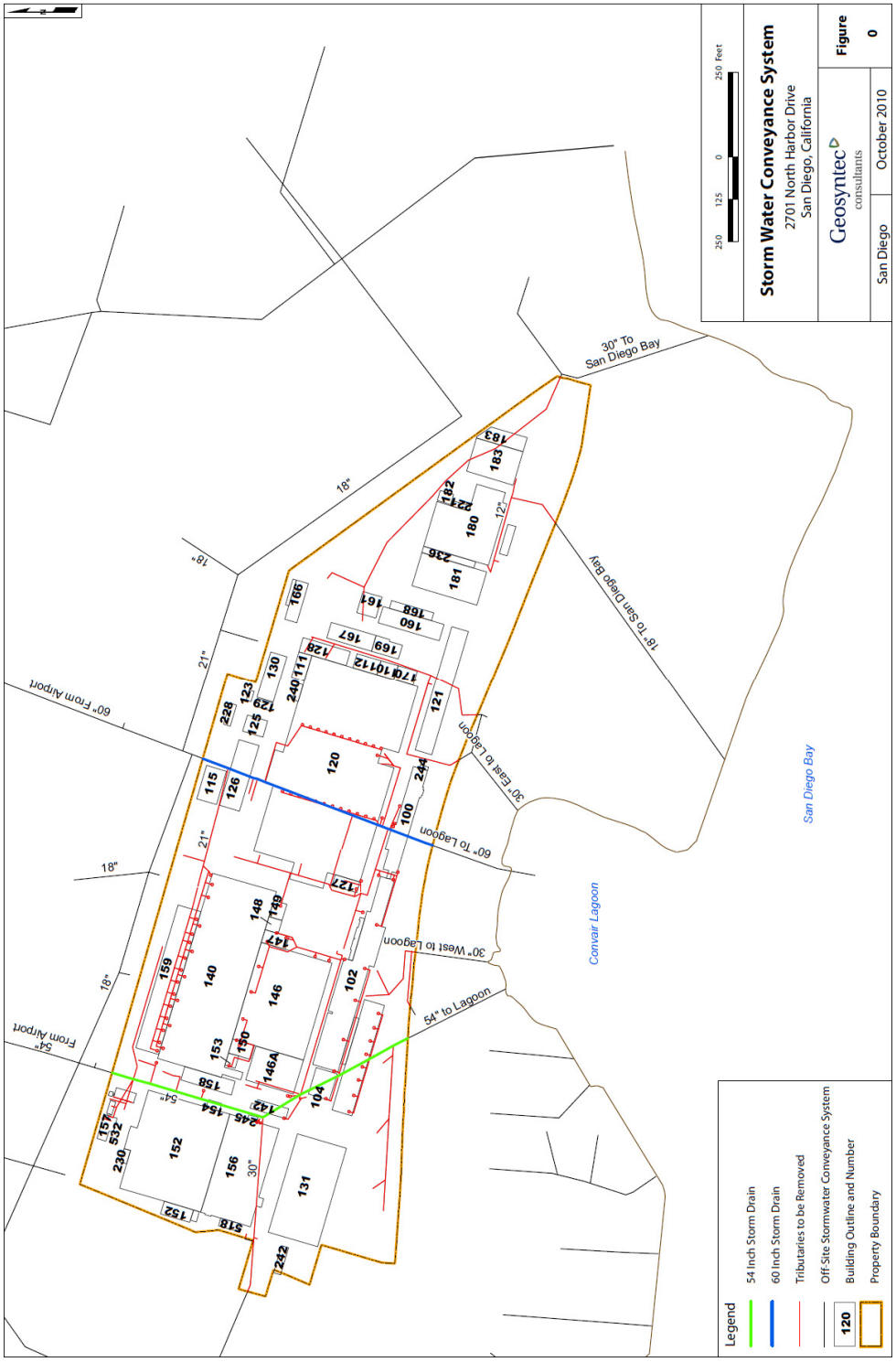
e. All media (soil, groundwater, and soil gas) are protective of all on-site receptors ~~of concern~~ based on a final site-wide post-remediation risk assessment.

I, David W. Gibson, Executive Officer, do hereby certify the forgoing is a full, true, and correct copy of a CAO issued on ~~**[insert date]**~~April 13, 2011.

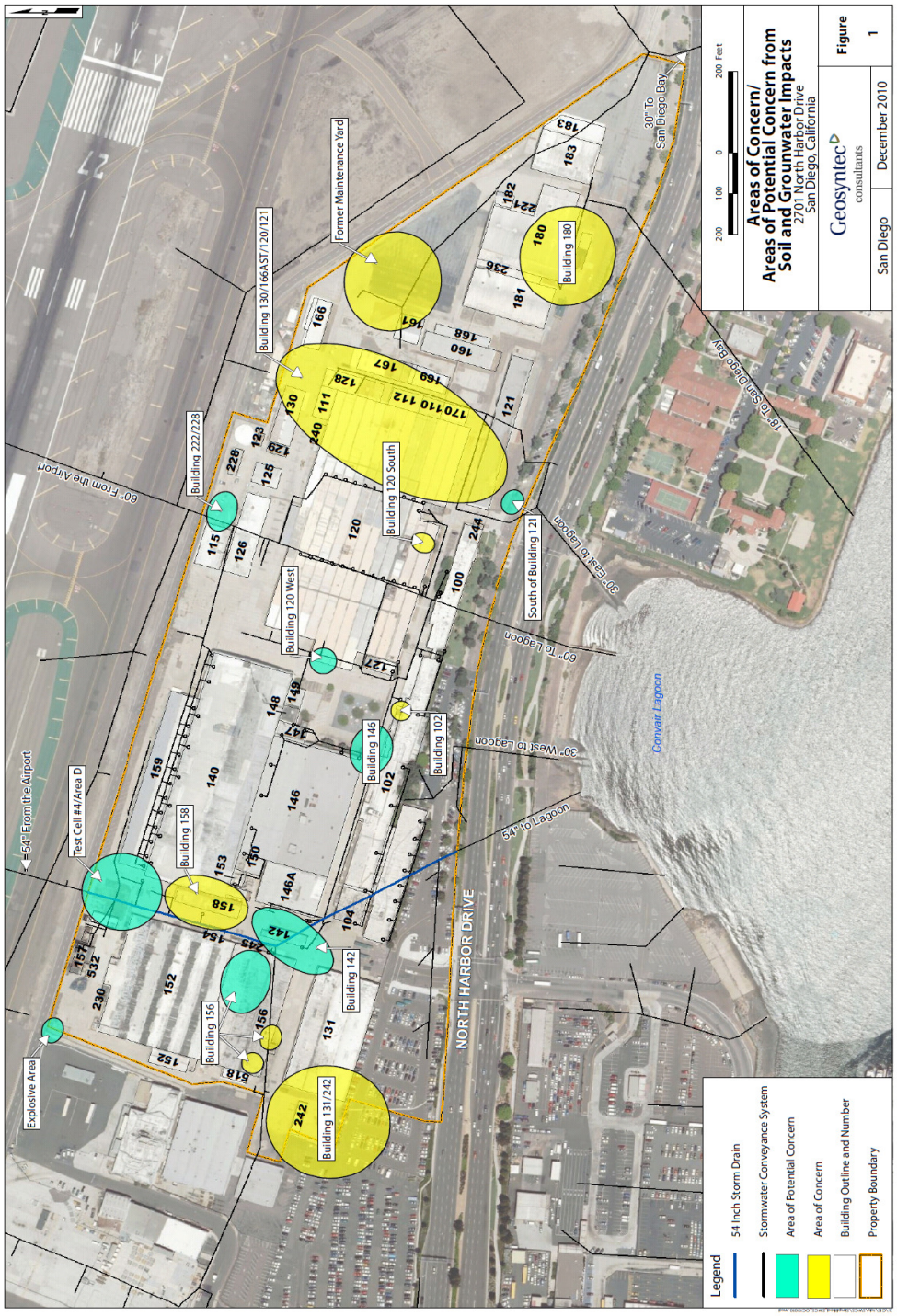
_____ _____

David W. Gibson ~~Date~~
Executive Officer

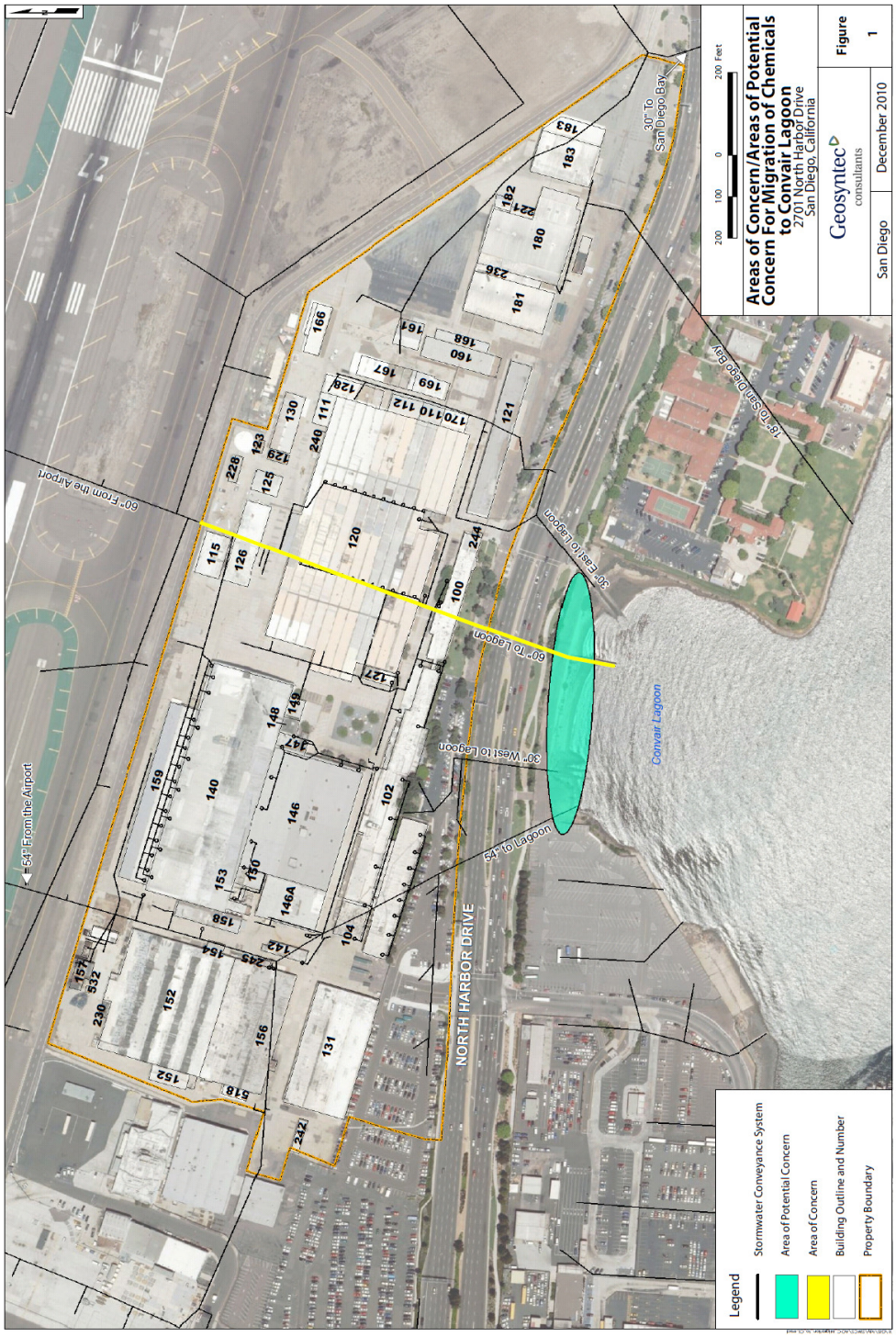
Attachment 1 - Onsite Storm Water Conveyance System



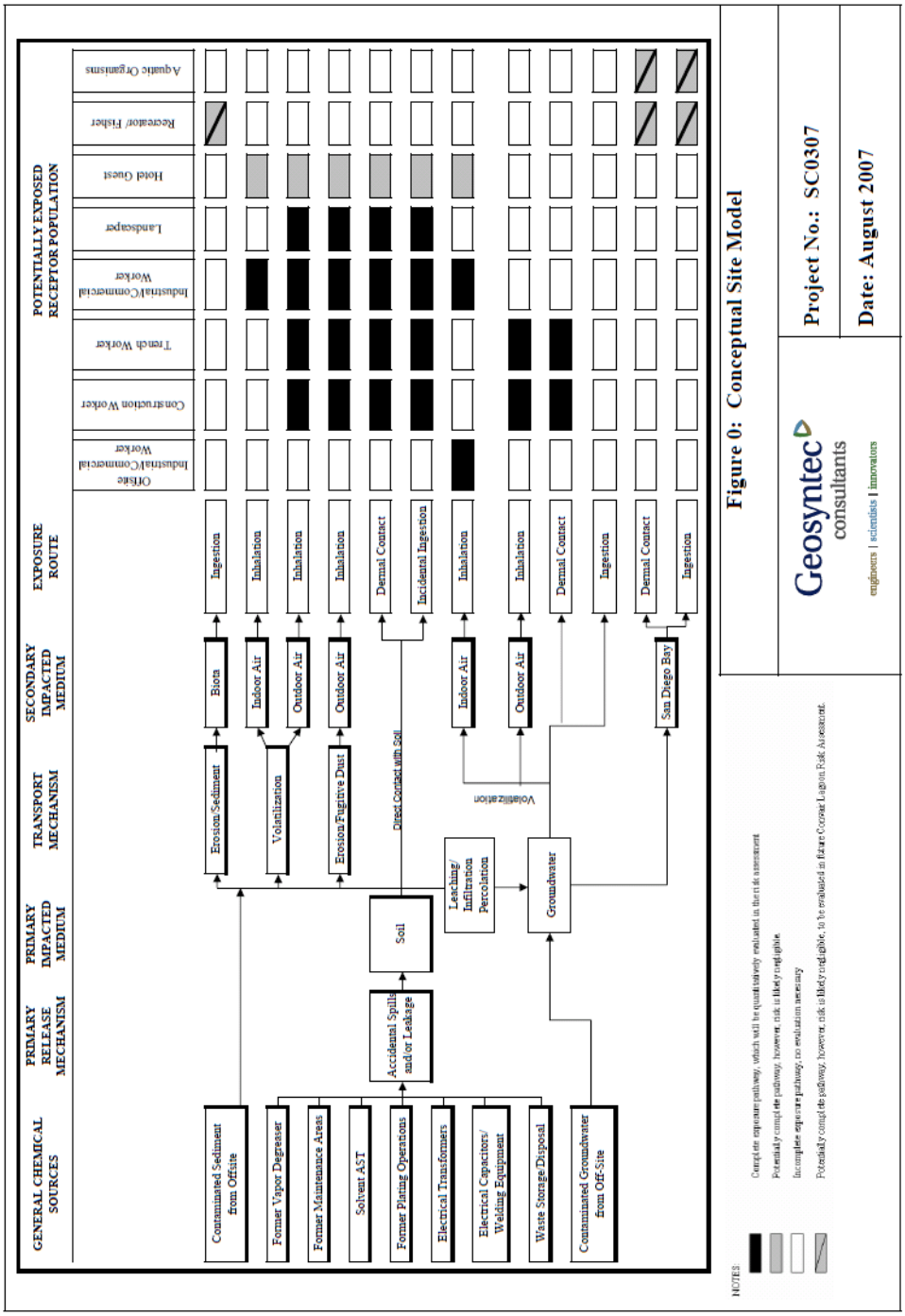
Attachment 2 - Areas ~~of Potential Concern and Areas of~~ Concern from Soil and Groundwater Contamination



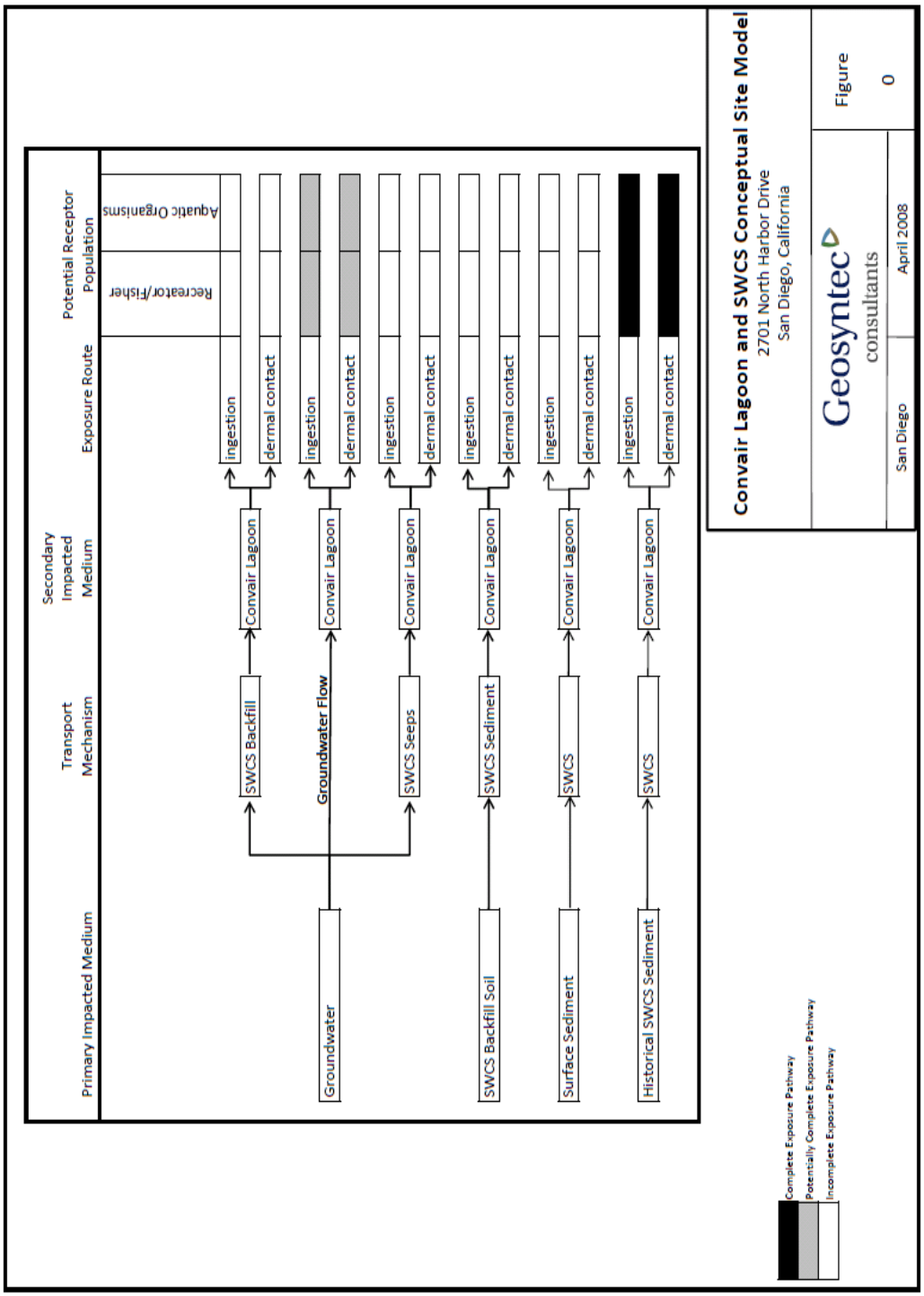
Attachment 3 - Areas of Concern from ~~Migration of Chemicals~~Transportation of Constituents to Convair Lagoon



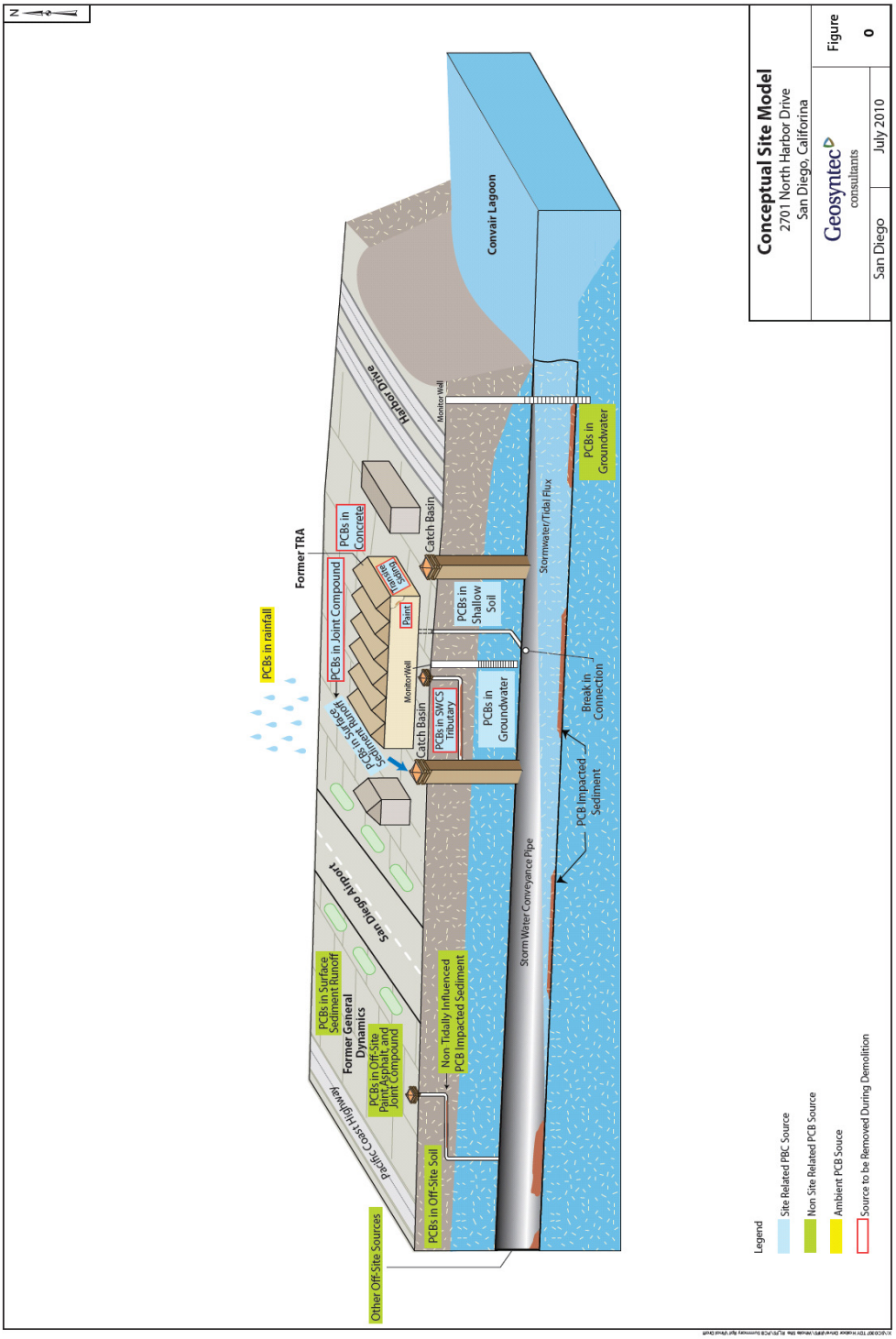
Attachment 4 - Conceptual Site Model for Human Health Risks from Soil and Groundwater Contamination



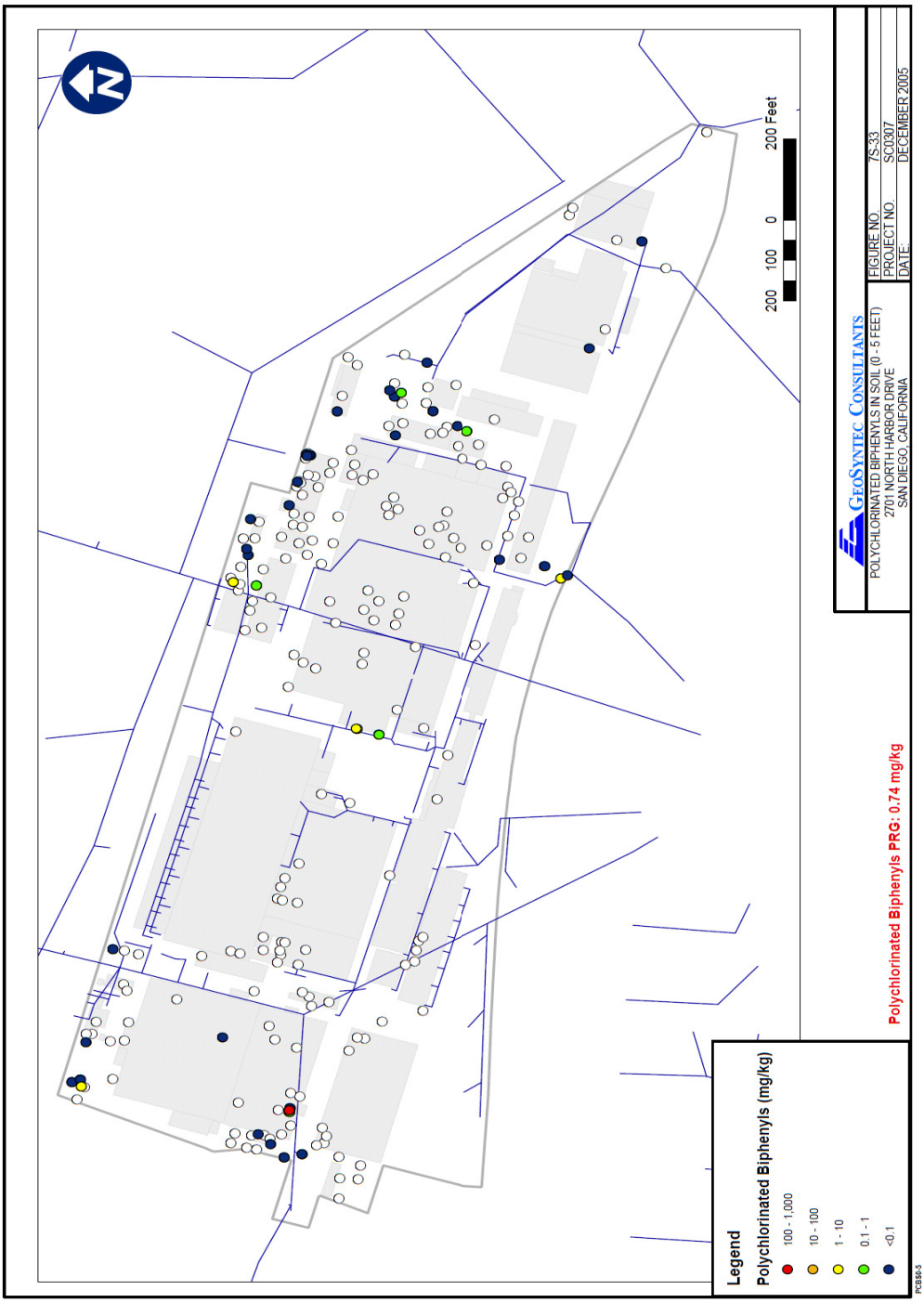
Attachment 5 - Conceptual Site Model for Human Health Risks from ~~Migration~~Transportation of ~~Chemicals~~Constituents

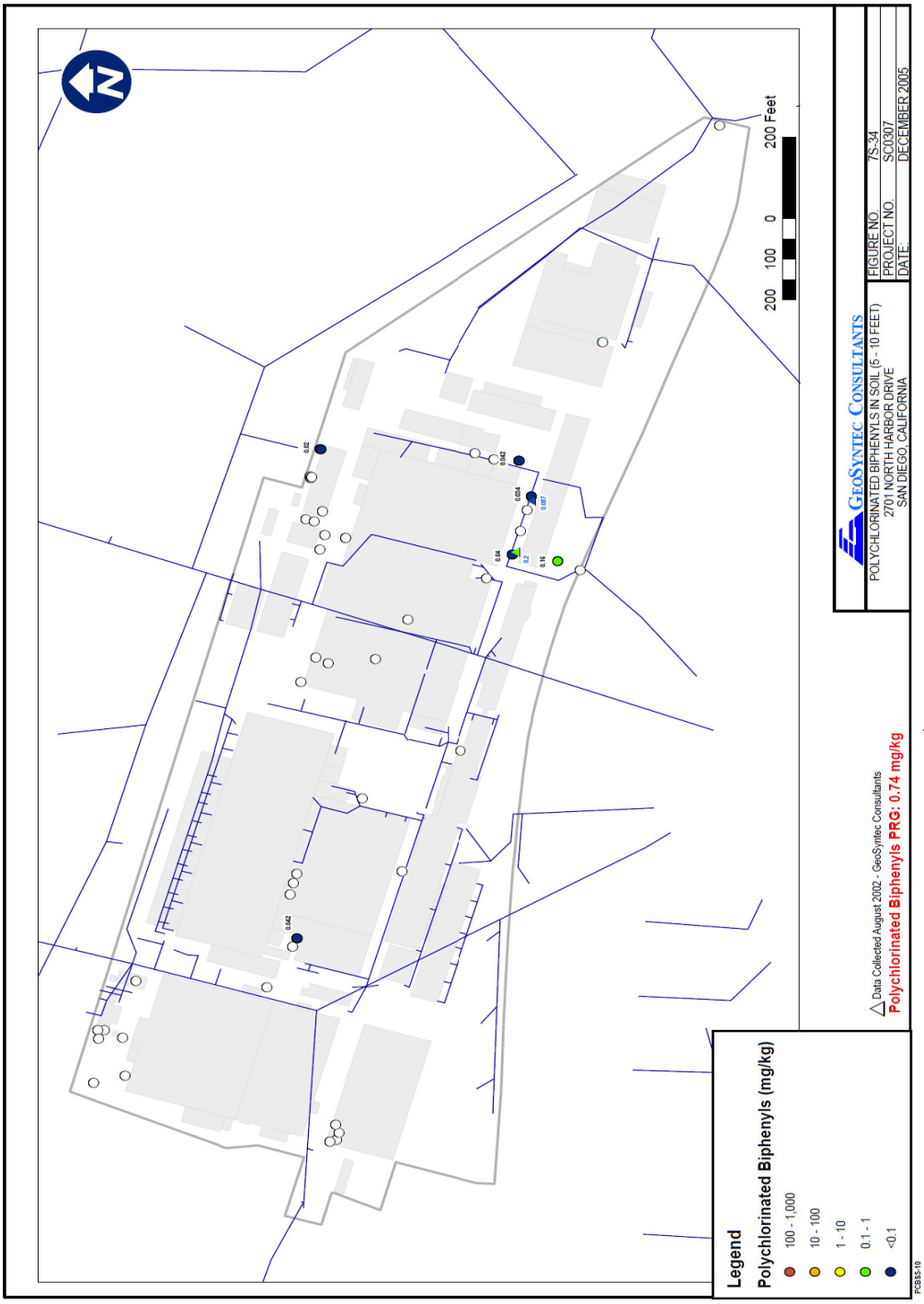


Attachment 6 - Conceptual Site Model for PCB Sources and Pathways



~~Attachment 7 - PCB Impacts in Soil~~




N
200 100 0 200 Feet
Legend
Polychlorinated Biphenyls (mg/kg)
100 - 1,000
10 - 100
1 - 10
0.1 - 1
<0.1
Data Collected August 2002 - GeoSyntec Consultants
Polychlorinated Biphenyls PRG: 0.74 mg/kg
GeoSyntec Consultants
POLYCHLORINATED BIPHENYLS IN SOIL (5 - 10 FEET)
2701 NORTH HARBOR DRIVE
SAN DIEGO, CALIFORNIA
FIGURE NO. 7S-34
PROJECT NO. SC0307
DATE DECEMBER 2005
PCBS5-10

~~Attachment 8 - PCB Impacts in Groundwater~~