



Industrial Permit Case Study

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NJDEP, Bureau of Surface Water and Pretreatment Permitting

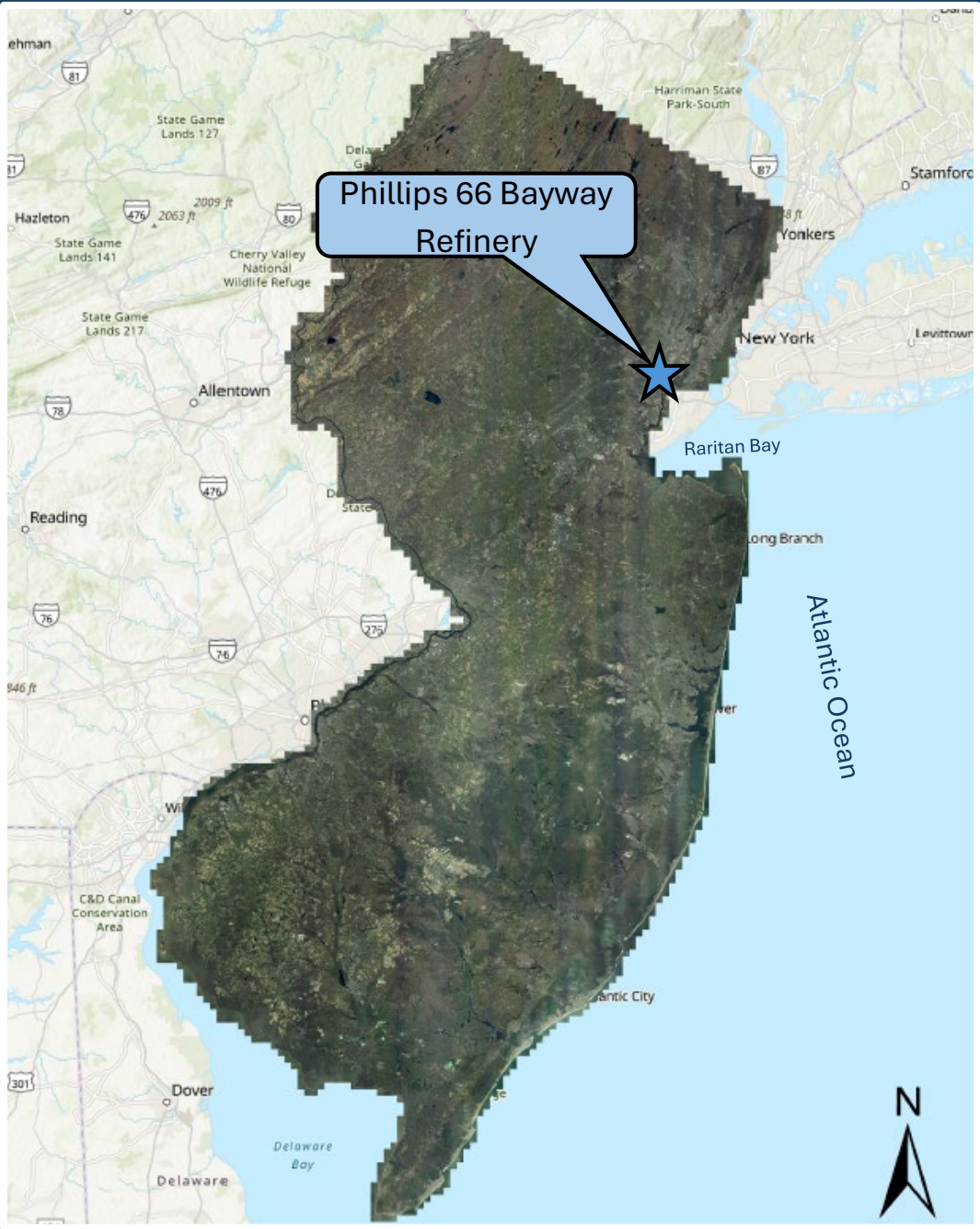
2026 National Industrial Permitting Workshop



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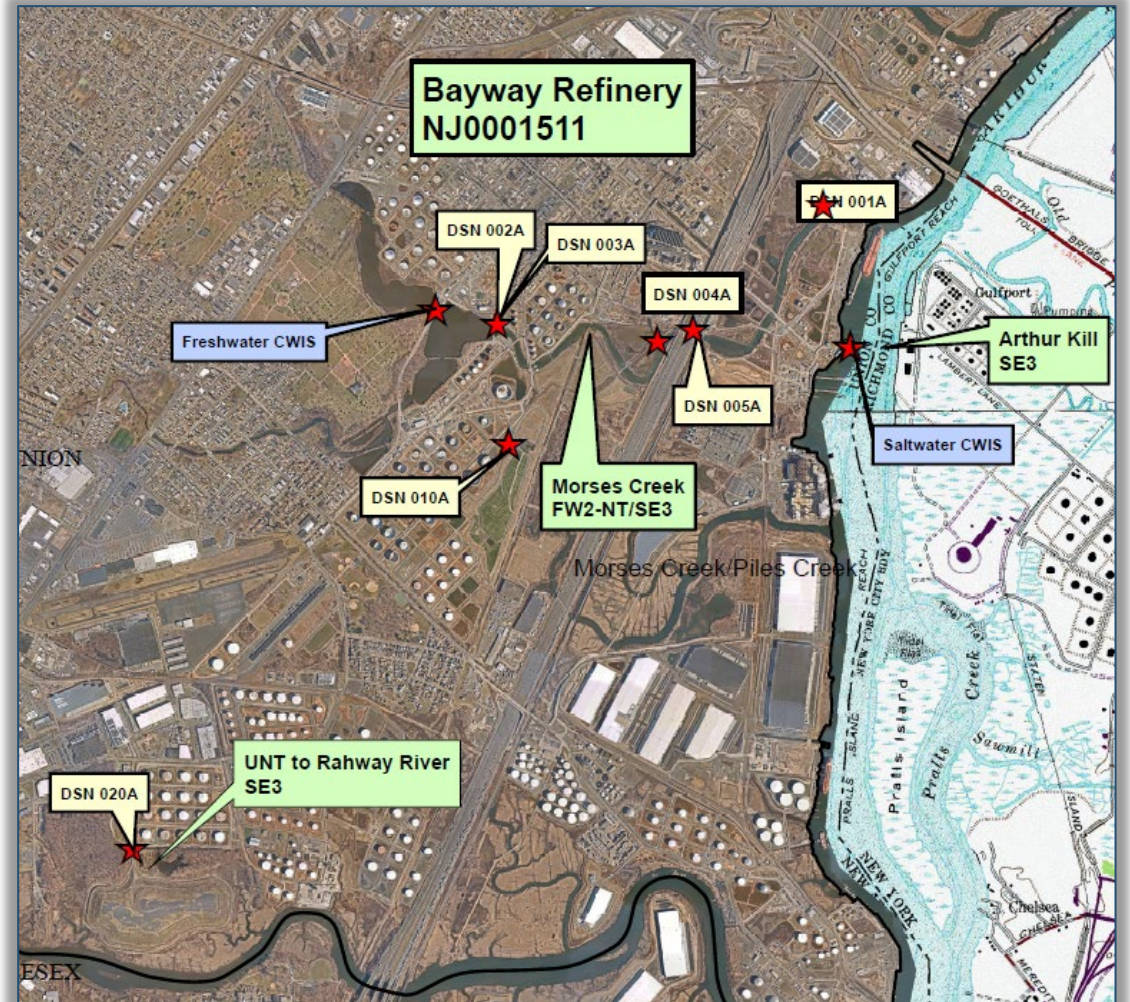
A photograph of the Phillips 66 Bayway Refinery at dusk. The image shows a complex industrial facility with numerous distillation columns, storage tanks, and a dense network of pipes and steel structures. The scene is illuminated by warm artificial lights, creating a contrast with the deep blue twilight sky. A semi-transparent dark blue banner is overlaid across the middle of the image, containing the refinery's name in white text. In the foreground, a white rail car is partially visible on the right side.

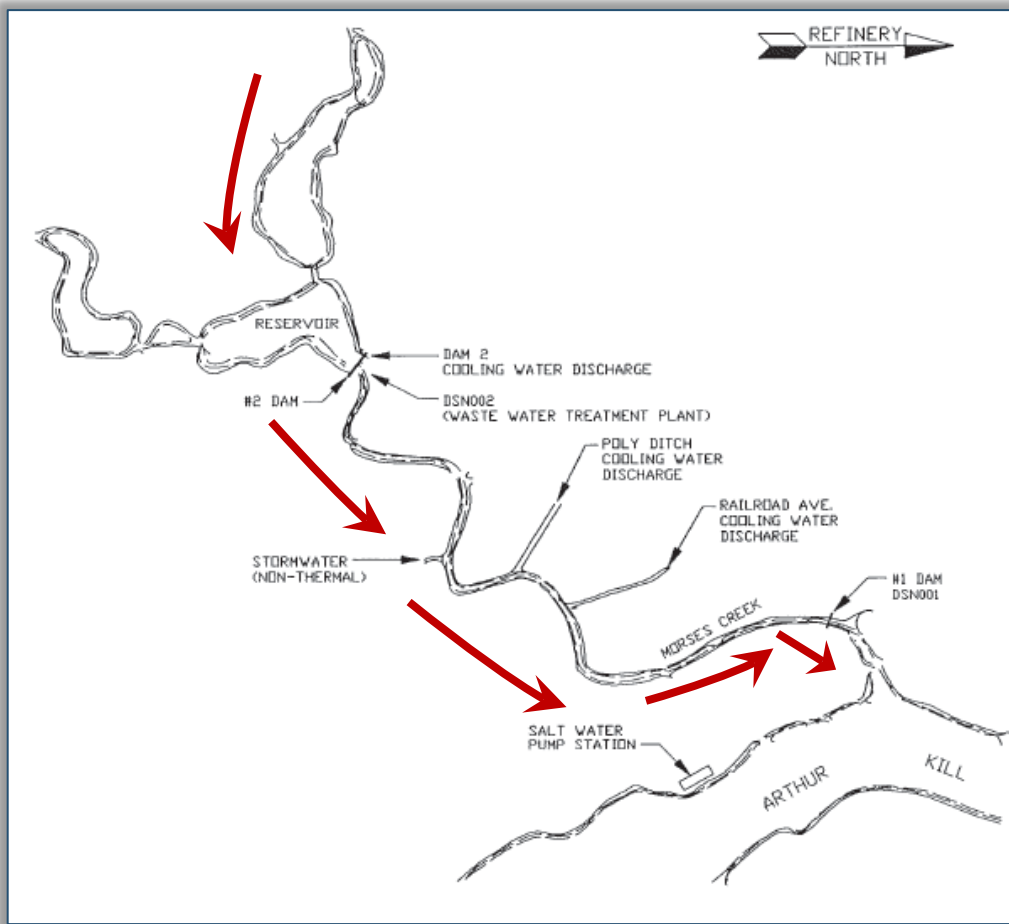
Phillips 66 Bayway Refinery



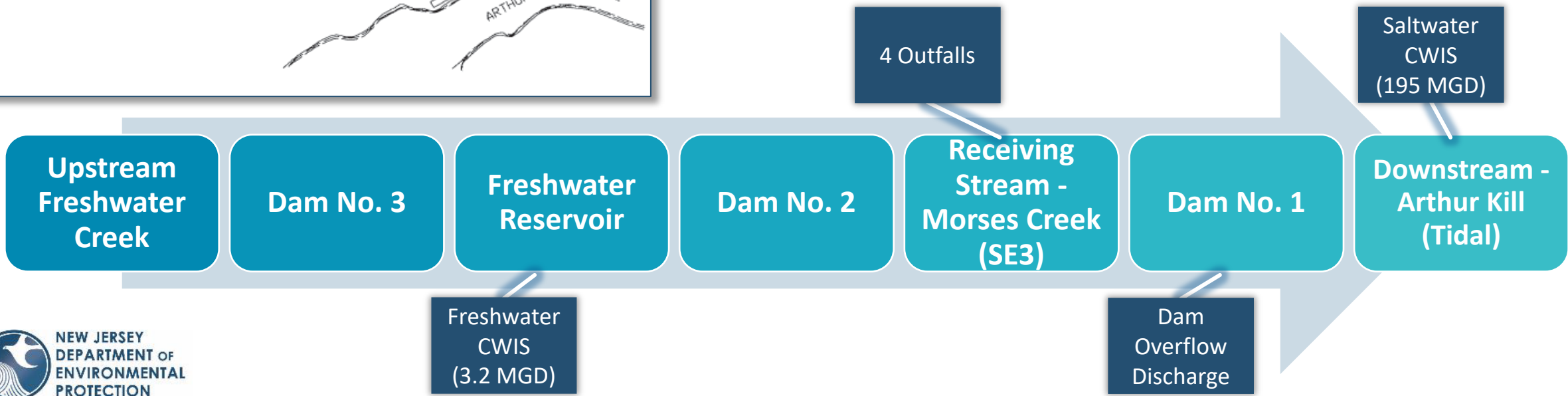
Discharge Locations

- **DSN 001A:** instream sampling point (dam overflow for upstream outfalls).
- **DSN 002A:** WWTP discharge for refining and manufacturing processes.
- **DSNs 003A, 004A, and 005A:** non-contact cooling water, commingled stormwater, and miscellaneous industrial components.
- **DSN 010A:** commingled industrial wastewater and stormwater; new discharge outfall authorization.
- **DSN 020A:** PFAS treatment plant; new discharge outfall authorization.





Receiving Stream and Hydrological Features



Facility Operations and ELGs



Petroleum Refining



Manufacturing of industrial organic chemicals (OCPSF) and lubricants



A unique combination of Effluent Limitation Guidelines (ELGs) determined in accordance with EPA's NPDES Permit Writer's Manual

The Permit Fact Sheet contained 12 pages of ELG limit calculations!

Subsection 3 – Combination of Effluent Limits using Refining Guidelines and OCPSF Guidelines

J. Calculation Results of ELGs: This section summarizes the results of the Refining, OCPSF, and BPJ Calculations in table format.

Table 8.J: BPT and BAT Effluent Limitations for Conventional, Non-Conventional, and Toxic Pollutants

Pollutant	BAT/BPT Effluent Limitations – Refinery Only		BAT Effluent Limitations – Chemical Plant (CP) Only		BAT Effluent Limitations – Combined (Refinery + CP)	
	MOAV (kg/day)	DAMX (kg/day)	MOAV (kg/day)	DAMX (kg/day)	MOAV (kg/day)	DAMX (kg/day)
Conventional Pollutants						
BOD ₅	920	1,656	204	545	1,124	2,201
Oil and Grease	268	502	49 ⁽¹⁾	92 ⁽¹⁾	317	594
TSS	736	1,154	278	895	1,014	2,049
Non-conventional Pollutants						
Ammonia	502	1,104	21 ⁽²⁾	46 ⁽²⁾	523	1,150
Sulfide	4.8	10.9	--	--	4.8	10.9
TOC	2,024	3,646	449	1,199	2,473	4,845
Toxic Pollutants						
Hexavalent Chromium	0.6 ⁽³⁾	1.3 ⁽³⁾	--	--	0.6	1.3
Total Chromium	7.1 ⁽³⁾	20.5 ⁽³⁾	6.0 ⁽⁴⁾	15.1 ⁽⁴⁾	13.1	35.6
Copper ⁽⁴⁾	0.7	0.7	7.9	18.4	8.6	19.2
Total Cyanide ⁽⁴⁾	12.1	12.1	2.3	6.5	14.4	18.7
Lead ⁽⁴⁾	3.7	3.7	1.7	3.8	5.4	7.4
Nickel ⁽⁴⁾	8.3	8.3	9.2	21.6	17.5	29.9
Phenolic Compounds ⁽⁴⁾	6.0 ⁽³⁾	12.4 ⁽³⁾	2.0	4.7	8.0	17.1
Zinc ⁽⁴⁾	1.8	1.8	5.7	14.2	7.6	16.1

Footnotes:

- ⁽¹⁾ The “Chemical Plant only” limitations for Oil and Grease are based on flow proration of Total CP flow vs refinery flow. Refer to Section 8.D for the limit calculations.
- ⁽²⁾ The “Chemical Plant only” limitations for ammonia are adjusted to account for the WSCP contribution. Refer to Section 8.C. for the limit calculations.
- ⁽³⁾ In accordance with the EPA document, “Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry”, the most stringent of BPT or BAT was used for these refinery only limitations. Refer to Table 8.B-2 for the limit comparisons.
- ⁽⁴⁾ Refer to Table 8.I.2 for the limit calculations.

Limits Calculated Using a Combination of ELGs

- Fact Sheet Subsection 1: 40 CFR Part 419.20: Subpart B - Cracking Subcategory for Petroleum Refining (8.A – 8.C)
- Fact Sheet Subsection 2: 40 CFR Part 414.91 OCPSF Guidelines (7/1/96 Edition): Subpart I - Direct Discharge Point Sources that Use End-of-Pipe Biological Treatment (8.D – 8.I)
- **Fact Sheet Subsection 3: Combination of Effluent Limits for Petroleum Refining and OCPSF Guidelines (8.J)**



PFAS Effluent Monitoring Data

Surrogate Parameter	Permit limit* (ng/L)	Max Effluent Data (ng/L)
Perfluorononanoic Acid (PFNA)	14	<2
Perfluorooctanesulfonic Acid (PFOS)	13	<2
Perfluorooctanoic Acid (PFOA)	14	0.8

Surrogate parameters allowable under N.J.A.C. 7:14A-13.10(a)8:

“(a) Surrogate limitations may be included in a discharge permit in accordance with the following:

8. The Department, upon its own initiative, may include a limitation for a surrogate parameter irrespective of a request by the affected permittee provided the fact sheet sets forth the basis for the limit, including a finding that compliance with the effluent limit on the surrogate parameter will result in controls on the pollutant of concern that are sufficient to attain the applicable effluent limitations and the permit conditions in (a)5 and 6 above are satisfied.”

*Effluent permit limits are based on the New Jersey Safe Drinking Water Regulations at N.J.A.C. 7:10-1.

Section 316 of the Clean Water Act

316 (a) – Thermal Component

- After a review of the application, which included updated information, NJDEP renewed the variance of the temperature limit.
- The thermal discharge must comply with a daily maximum limit.
- This variance expires along with the permit and will be evaluated upon renewal.

The Permit Fact Sheet contained 38 pages dedicated to the 316(a) and (b)!



Section 316 of the Clean Water Act

316 (b) – CWIS and BTA

- Freshwater intake – 3.2 MGD
- Saltwater intake – 195 MGD
- BTA “interim” determinations were made for both intakes.
- The permit required additional information to be submitted by the permittee in order to make “final” BTA determinations.



Takeaways

This was a complex industrial renewal permit with many components

Coordinated efforts with enforcement, federal services, and other programs within NJDEP

NJDEP attended multiple site visits at the facility, which included tours and discussions on the permit.

The permittee (Phillips 66) did not appeal the permit, which can be attributed to diligence during the permit renewal process and the positive collaboration with the permittee.



Contact Information

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