OFFICE OF RIVER PROTECTION
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Richland, Washington 99352

13-ECD-0001

FEB 07 2013

Mr. Pat Nair
U.S. Environmental Protection Agency
Idaho Operations Office, Region 10
1435 North Orchard Street
Boise, Idaho 83706

Dear Mr. Nair:

SUBMITTAL OF ENDANGERED SPECIES ACT (ESA) PROJECT DESCRIPTION SUPPORTING PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT PSD-02-01

Reference: ORP letter from S. L. Samuelson to R. Hibbard, Ecology, "Re-Submittal of Waste Treatment and Immobilization Plant (WTP) Prevention of Significant Deterioration (PSD) Permit Application Supplement to PSD-02-01, Amendment 2," 12-ECD-0047, dated September 26, 2012.

Attached for your review is an ESA Project Description supporting a proposed amendment to the existing Waste Treatment and Immobilization Plant (WTP) PSD Air Permit PSD-02-01 (Reference). The Project Description provides the U.S. Environmental Protection Agency with information to evaluate proposed changes to the PSD Permit for impacts to threatened or endangered species.

The WTP project commenced construction under PSD Permit PSD-02-01 on July 2, 2002, and construction has continued. The Referenced PSD amendment proposes to eliminate two emergency diesel generators from the design and replace them with two emergency turbine generators for emergency power production. The turbine generators will be placed on the same location as the previously permitted emergency diesel generators resulting in no additional clearing, grading, or habitat destruction. There are no wastewater discharges associated with turbine generator operation.

The PSD amendment also proposes an increase to the annual operating hour restriction for two diesel engine-driven emergency fire pumps to support maintenance and testing of fire protection systems. Increasing the annual operating hour restriction will not require any additional clearing, grading, or habitat destruction since the fire pumps have been installed and operational since 2008. Fire water discharges to the soil column may result from fire pump operation; however, these discharges will remain within the previously disturbed WTP construction site boundary. There are no surface water discharges from the fire pump operation or any other WTP activity since there is no conveyance to the nearest surface water (Columbia River) which is approximately six miles from the WTP site.

Emissions analysis compared the existing maximum projected WTP criteria pollutant emissions of Particulate Matter (PM), PM_{10}, $PM_{2.5}$, NO_X, CO, SO_2, and Volatile Organic Compounds to those resulting from the proposed changes. The analyses demonstrated that the maximum projected emissions from both the turbine generators and fire pump engines are below PSD significant emission rates. Additionally, air dispersion modeling demonstrated that air emissions resulting from the proposed changes are well below National Ambient Air Quality Standards.

The WTP is being designed and constructed as part of the U.S. Department of Energy (DOE) strategy to remove and stabilize liquid radioactive, hazardous, and mixed waste stored in 177 underground storage tanks at the Hanford Site. An Environmental Impact Statement (EIS) and several supplemental analysis studies were conducted to examine the impacts of the original WTP project. The final EIS examining alternative approaches to the Hanford Tank Waste cleanup mission was issued December 2012. The EIS examines several options including proceeding with the current plans for construction and operation of the WTP. DOE consulted with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration during preparation of the EIS. The EIS determined that proceeding with construction and operation of the WTP would have no impact on federally listed threatened and endangered species.

If you have any questions, please contact me, or your staff may contact Dennis W. Bowser, Environmental Compliance Division, (509) 373-2566.

K. W. Smith

Kevin W. Smith
Manager

ECD:DWB

Attachment

cc w/attach:
O. L. Bostic, BNI
B. G. Erlandson, BNI
R. Haggard, BNI
P. M. Gent, Ecology
P. J. Martell, WDOH
Administrative Record
BNI Correspondence
Environmental Portal, LMSI

Attachment
13-ECD-0001
(12 Pages)

Endangered Species Act Project Description Supporting Prevention of Significant Deterioration Permit PSD-02-01 Amendment 3

24590-WTP-RPT-ENV-12-003, Revision 0

Endangered Species Act Project Description Supporting Prevention of Significant Deterioration Permit PSD-02-01 Amendment 3

Document title:

Document number: 24590-WTP-RPT-ENV-12-003, Rev 0

Contract number: DE-AC27-01RV14136

Department: Environmental

Author(s): Robert Haggard 12/5/12

Checked by: Lee Bostic 12/6/12

Issue status: Approved

Approved by: Brad Erlandson

Approver's position: Environmental Manager

Approver's signature: _____ 12/6/2012
Signature *Date*

River Protection Project
Waste Treatment Plant
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History Sheet

Rev	Reason for revision	Revised by
0	Initial Issuance to support WTP PSD Permit PSD-02-01 Amendment 3.	R Haggard

Contents

Figures

1 Introduction

This document provides the Environmental Protection Agency (EPA) with the information necessary to make an evaluation of changes at the Hanford Tank Waste Treatment and Immobilization Plant (WTP) included in the application for proposed amendment to the existing Prevention of Significant Deterioration (PSD) Air Permit PSD-02-01 (24590-WTP-RPT-ENV-12-001) for compliance with requirements in the Endangered Species Act (ESA) and the Essential Fish Habitat (EFH) section of the Magnuson-Stevens Act. The WTP project commenced construction under PSD Permit PSD-02-01 on July 2, 2002 and construction has continued with a completion date planned for 2019.

The ESA and EFH effect determination is focused on proposed changes to the WTP PSD Permit PSD-02-01. The PSD amendment proposes to eliminate two emergency diesel generators from design and replace them with two emergency turbine generators for emergency power production. The turbine generators will be placed on the same location as the previously permitted emergency diesel generators resulting in no additional clearing, grading, or habitat destruction. There are no wastewater discharges associated with turbine generator operation.

The PSD amendment also proposes an increase to the annual operating hour restriction for two emergency diesel engine-driven fire pumps to support maintenance and testing of fire protection systems. Increasing the annual operating hour restriction will not require any additional clearing, grading or habitat destruction since the fire pumps have been installed and operational since 2008. Raw Columbia River water discharges to the soil column may result from fire pump operation; however, these discharges will remain within the previously disturbed WTP construction site boundary.

There are no surface water discharges from the fire pump operation or any other WTP activity since there is no conveyance to the nearest surface water (Columbia River) which is approximately six (6) miles from the WTP site. (Figure 1).

All other WTP facilities remain unchanged and continue under construction.

A Draft Environmental Impact Statement (EIS) examining alternative approaches to the Hanford Tank Waste cleanup mission (DOE 2009) was prepared by the U.S. Department of Energy (DOE) and cooperating agency (Washington State Department of Ecology). The DOE received approval to print the final EIS during November 2012 and it is planned to be issued in December 2012. The EIS determined that proceeding with construction and operation of the WTP would have no impact on federally listed threatened and endangered species.

2 Applicable Regulatory Requirements

On November 17, 2011, the Ecology and EPA signed *Agreement for Delegation of Source Review Under the Federal Prevention of Significant Deterioration (PSD) Regulations by the United States Environmental Protection Agency, Region 10 to the State of Washington Department of Ecology*. The agreement establishes the legal and procedural bases for Ecology to conduct source review and to implement and enforce the Federal PSD regulations. Under Section V, clause A of the Agreement, EPA retains obligation under the Endangered Species Act (ESA) and the Essential Fish Habitat (EFH) section of the Magnuson-Stevens Act to review PSD permitting actions to ensure they do not jeopardize the

continued existences of any endangered or threatened species, or cause destruction or adverse modification of critical habitat for those species.

To satisfy the ESA and EFH obligations, a Washington State PSD applicant must provide EPA with a project description and endangered species information identified in the above Delegation Agreement. The EPA will use this information to make an effect determination for a proposed PSD permitting action.

3 Background - Environmental Impact Statement

The WTP is being designed and constructed as part of the U.S. Department of Energy (DOE) strategy to remove and stabilize liquid radioactive, hazardous, and mixed waste stored in 177 underground storage tanks at the Hanford Site. An environmental impact statement and several supplemental analysis studies were conducted to examine the impacts of the original WTP greenfield project which commenced construction related clearing and grubbing in 2001. These studies include:

- *DOE/EIS-0189, Final Environmental Impact Statement for the Tank Waste Remediation System* (DOE and Ecology 1996)
- Three Supplement Analysis to examine changes to the original project plans (DOE 1997, 1998a, 2001)

Impacts to existing biological resources including endangered species that reside in the local area were examined and as appropriate, mitigation action plans were prepared to mitigate impacts (DOE 1998b, 2000). Initial site clearing and grubbing commenced in 2001 in accordance with the mitigation actions identified in the mitigation action plans, and official start of construction occurred in 2002, following receipt of permit approvals.

The final Environmental Impact Statement (EIS) examining alternative approaches to the Hanford Tank Waste cleanup mission (draft, DOE 2009) received approval to print during November 2012 and is planned to be issued in December 2012. The EIS examines several options including proceeding with the current plans for construction and operation of the WTP. DOE consulted with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration during preparation of the draft EIS. Threatened and Endangered Species are discussed in Section 3.2.7.4 of the draft EIS. Environmental consequences and mitigation of these consequences are discussed in Section 7 of the EIS.

The EIS determined that proceeding with construction and operation of the WTP would have no impact on federally listed threatened and endangered species (DOE 2009).

4 ESA/EFH Project Description

4.1 Scope of Project Description

This document is prepared to supply information to enable EPA to fulfill ESA and EFH review obligations under the Federal PSD regulations. The information included is based on the U.S. Fish and Wildlife Services guidance contained in the Ecology/EPA PSD Delegation Agreement. The EPA will use

this information to make an effect determination for the changes proposed under PSD Permit PSD-02-01 Amendment 3 described in Section 4.

The document describes WTP Project proposed changes to equipment and facilities permitted by PSD Permit PSD-02-01 (Section 4.5 below). Construction of the WTP commenced in 2002. This proposed change to the PSD permit does not increase area disturbance; therefore, the project is not a "greenfield project" and a Biological Assessment is not required per the Ecology/EPA Delegation Agreement guidance.

4.2 PSD Permitting Agency, Applicant, and Construction Contractor

ESA/EFH Review Agency	Pat Nair Office of Air, Waste and Toxics Idaho Operations Office 950 W. Bannock Street Boise, Idaho 83702
PSD Permitting Agency	Richard Hibbard, Project Manager Washington State Department of Ecology P.O. Box 47600 Olympia, Washington 98504
Applicant	S. L. Samuelson P.O. Box 450, MSIN H6-60 Richland, Washington 99352
Construction Contractor	F. M. Russo, Project Director Bechtel National Inc. 2435 Stevens Center Place Richland, Washington 99352

4.3 Location of the WTP

The WTP is being constructed near the center of the Hanford Site on 120 acres at the eastern end of the 200 East Area of the Hanford Site, near the former grout treatment facility, the 241-AP tank farm complex, and the plutonium uranium extraction plant (PUREX). The site is located northwest of Richland, Washington. The WTP will be sited at Gable Butte, Washington (shown on a 7.5-minute quadrangle topographic map in Section 3, T12N, R26E Willamette Base and Meridian).

A schematic of the Hanford Site and WTP location is presented in Figure 1.

4.4 WTP Overview Description

The WTP is being constructed to store and treat mixed waste from the Hanford Site Double Shell Tank system and will consist of three (3) main processing plants which include the pretreatment (PT), low-activity waste (LAW) vitrification, and high-level waste (HLW) vitrification facilities. Tank waste will be received in the PTF where it will be separated into LAW and HLW feed. Waste will be immobilized in a glass matrix and poured into steel containers. Offgas generated by the PT and vitrification processes will be treated in independent offgas treatment systems. Typical offgas streams include process vessel

ventilation, melter offgas, and exhaust from fluidic transfer devices, such as reverse flow diverters and pulse jet mixers.

Building ventilation systems will also be incorporated into each of the processing plants and are designated as C2, C3, and C5 area emission units. Air from the treated building air ventilation systems will be vented to the atmosphere through dedicated flues.

The WTP will have an onsite analytical laboratory to support sampling and analysis activities. The offgases generated from sampling and analysis activities will be treated and vented to the atmosphere through three (3) dedicated emission units classified as C2, C3, and C5.

Support systems and utilities required for the WTP will be provided by the balance of facilities (BOF). The BOF facilities include steam plant boilers, Type 1 diesel generator, turbine generators, diesel engine driven fire pumps, and glass former storage facility.

Figure 2 provides a graphical rendition of the final constructed plant and Figure 3 provides a recent photo of the WTP Construction Site.

4.5 Proposed Changes to PSD Permit PSD-02-01

On May 21, 2012, *Prevention of Significant Deterioration Permit Application Supplement to PSD-02-01* was submitted to Ecology to request approval of planned design changes affecting the existing PSD Permit PSD-02-01, Amendment 2. On July 16, 2012, Ecology determined that the PSD Permit Application was complete. The PSD Permit Application proposes to eliminate the emergency diesel generators from design and replace them with turbine generators for emergency power production. The Permit Application also proposes an increase to the annual operating hour restriction for the two diesel engine-driven fire pumps to support maintenance and testing of fire protection systems. All other WTP facilities and associated emission units remain unchanged and continue under construction.

The replacement turbine generators will be placed at the same location previously intended for the emergency diesel generators currently in the WTP design that will be replaced by turbine generators. Increasing the annual operating hour restriction for the diesel powered fire pumps does not require the pumps to be relocated. Therefore no additional clearing, grading or habitat destruction is required.

4.6 Purpose of Proposed Change

The emergency diesel generator design activity was terminated because WTP determined that emergency turbine generator technology is a better solution from a technical standpoint and has the additional benefit of improving the cost-risk profile compared to diesel engine generator use, while continuing to assure a reliable source of emergency power for critical Nuclear Safety systems, structures, and components. Elements that support the change to turbine technology includes:

- Deletion of necessary diesel engine water cooling systems that included large air-cooled radiators and associated volcanic ash protection filtration systems. Turbines are air cooled and do not require the same robust cooling system as diesel engines.
- Improvement in efficiency and reduction in parasitic loads associated with three (3) otherwise-required 400 hp radiator cooling fans to support diesel engine cooling.

- Turbine engine maintenance is eased, maintenance is performed less frequently, and the systems typically involve approximately one-third the number of parts compared to diesel engine generators.
- Turbine technology results in a lower NO_x and particulate matter emissions alternative to equivalently sized diesel engine technology.

The operating hour increase on the two emergency diesel fire pumps is proposed to support maintenance and testing of WTP fire protection systems.

4.7 Environmental Impacts of Proposed Changes

Siting

The turbine generators will be placed on the same location as the previously permitted Type II emergency diesel generators resulting in no additional clearing, grading, or habitat destruction.

Increasing the annual operating hour restriction on the emergency diesel fire pumps for testing and maintenance will not require any additional clearing, grading or habitat destruction since the units have been installed and operational since 2008.

Air Emissions

Emissions analysis compared the existing maximum projected WTP criteria pollutant emissions of PM [particulate matter], PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, and volatile organic compounds (VOC) to those resulting from the proposed changes. The analyses demonstrated that the maximum projected emissions from both the turbine generators and fire pump engines are below PSD significant emission rates. The proposed changes will reduce NO_x emissions by approximately three (3) tons per year and PM by less than one (1) ton per year. Slight increases in maximum projected CO, SO_2, and VOC emissions result from the changes but emissions are well below PSD significance levels.

Air dispersion modeling demonstrated that air emissions resulting from the proposed changes are well below National Ambient Air Quality Standards. Emissions of PSD regulated pollutants NO_x and PM are actually reduced with the change.

Wastewater Discharge

There are no wastewater discharges associated with turbine generator operation.

Raw Columbia River water discharges to ground may result from fire pump operation and will be discharged directly to the soil column or collected in an on-site stormwater collection basin for soil column discharge. All discharges will remain within the previously disturbed WTP construction site boundary. There are no surface water discharges from the fire pump operation since there is no conveyance to the nearest surface water (Columbia River) which is approximately six (6) miles from the WTP site.

5 References

24590-WTP-RPT-ENV-12-001, *Prevention of Significant Deterioration Permit Application Supplement to PSD-02-01, Amendment 2.*

DOE 1996. *Tank Waste Remediation System, Hanford Site, Richland, WA, Final Environmental Impact Statement*, DOE/EIS-0189, U.S. Department of Energy and Washington State Department of Ecology, August 1996.

DOE 1997. *Supplement Analysis for the Proposed Upgrades to the Tank Farm Ventilation, Instrumentation, and Electrical Systems under Project W-314 in Support of Tank Farm Restoration and Safe Operations*, DOE/EIS-0189-SA1, U.S. Department of Energy, Richland Operations Office, Richland, Washington, May 1997.

DOE 1998a. *Supplement Analysis for the Tank Waste Remediation System*, U.S. Department of Energy, DOE/EIS-0189-SA2, Richland Operations Office, Richland, Washington, May 1998.

DOE 1998b. *Mitigation Action Plan for the U.S. Department of Energy, Hanford Site, Tank Waste Remediation System Privatization Phase I Facility Construction*, DOE-RL, 1998, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE 2000. *Threatened & Endangered Species Management Plan: Salmon and Steelhead*, DOE/RL 2000-27, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE 2001. *Supplement Analysis for the Tank Waste Remediation System*, U.S. Department of Energy, DOE/EIS-0189-SA3, Office of River Protection, Richland, Washington, March 2001.

DOE 2009. *Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)*, DOE/EIS-0391, Office of River Protection, Richland, Washington, October 2009.

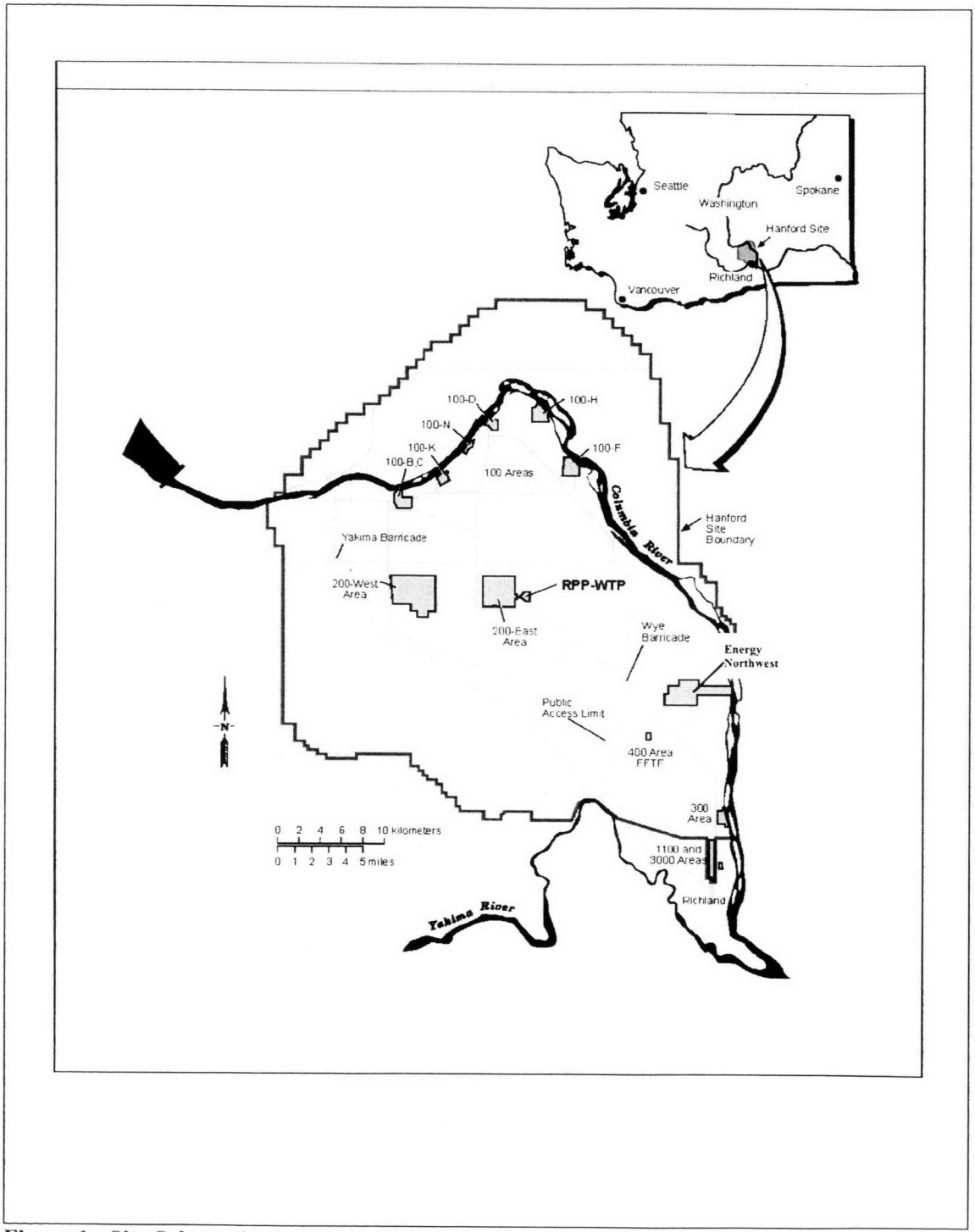
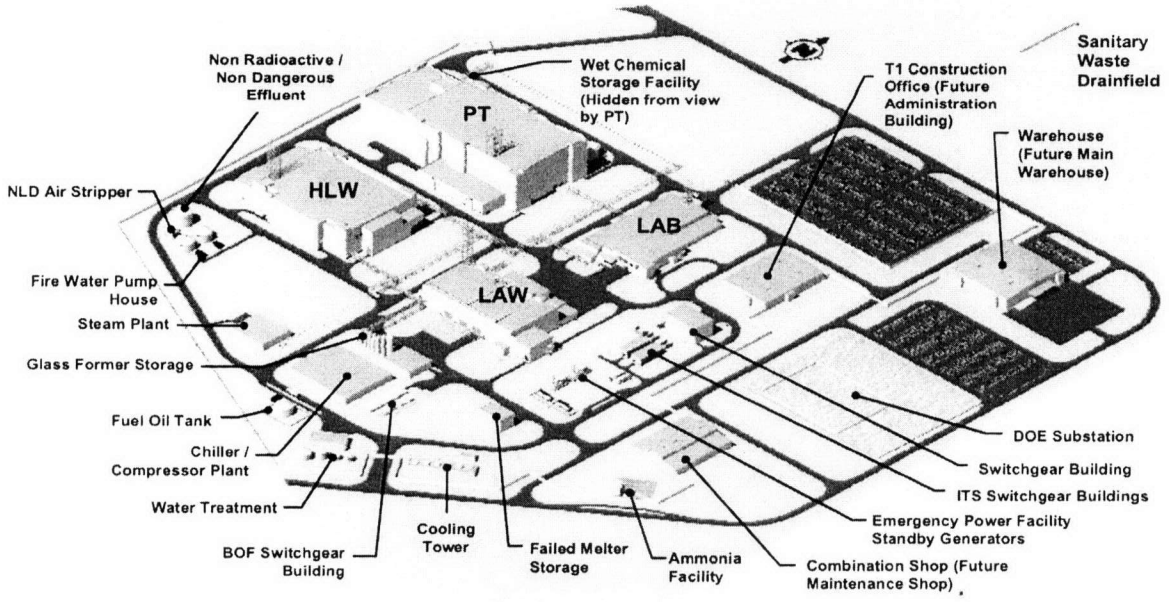


Figure 1 - Site Schematic

Waste Treatment Plant Project



November 2012

Figure 2 - Final WTP Site

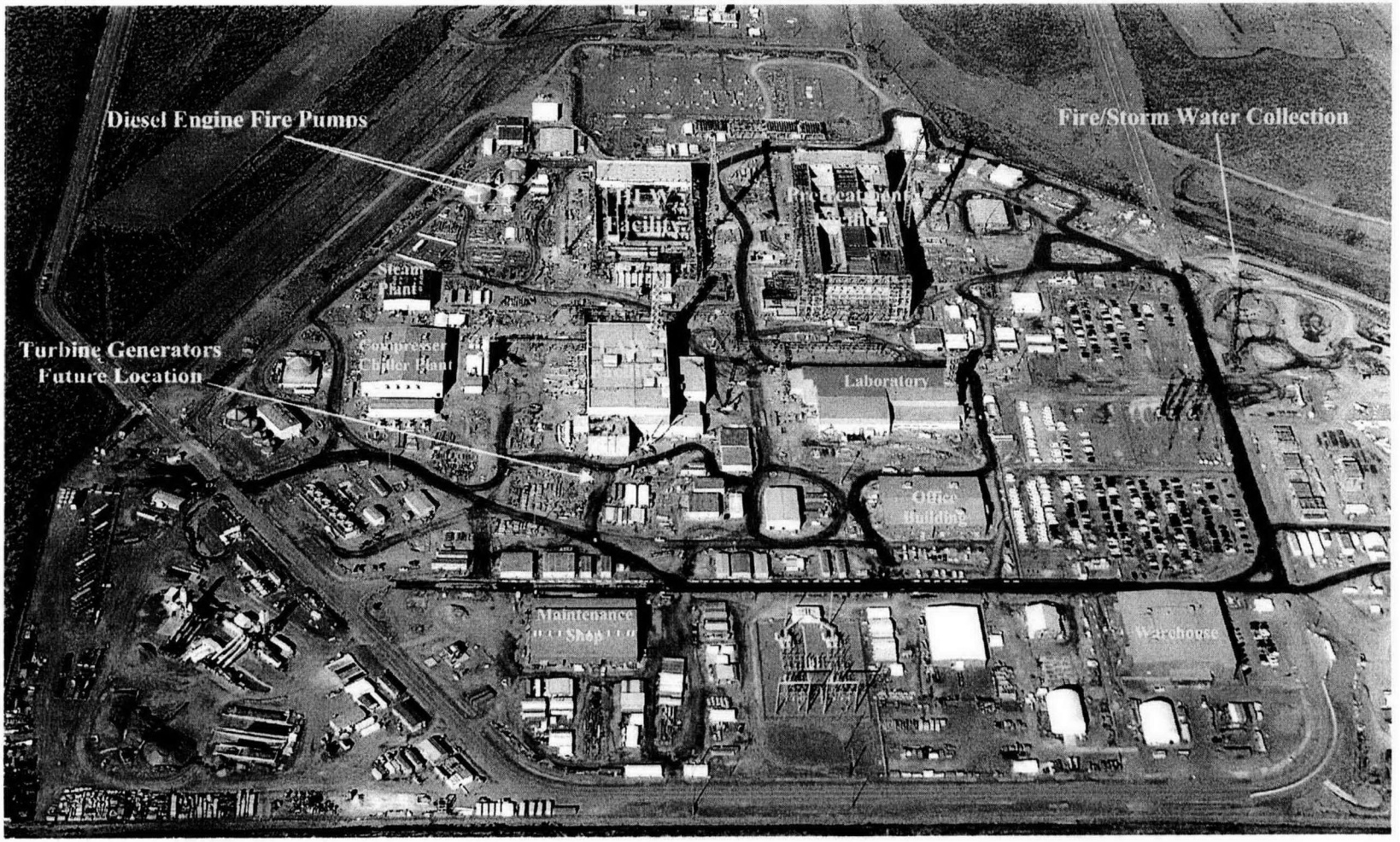


Figure 3 - Current Site Photo - September 2012