ENTERED

Allen, Pam, NMENV

From: Maestas, Ricardo, NMENV
Sent: Wednesday, February 10, 2016 10:59 AM
To: Allen, Pam, NMENV
Subject: FW: Request by NMED
Attachments: IVS and SVS draft for NMED sept_2015_gtb.pdf

From: George Basabilvazo [mailto:george.basabilvazo@cbfo.doe.gov]
Sent: Tuesday, September 15, 2015 10:10 AM
To: Maestas, Ricardo, NMENV; Smith, Coleman, NMENV; Kieling, John, NMENV; Roberts, Kathryn, NMENV; Chavez, Rick - RES (Rick.Chavez@wipp.ws); Anthony Stone
Subject: Request by NMED

At the last 1:00 pm monthly Recovery status call Coleman indicated he was interested in design features that isolate the clean side from the contaminated side. The requests from that status call come through me for disposition. A couple of points, the monthly status call is not the appropriate venue for a presentation or discussion as requested, secondly we have had several discussions and provided documents, maps and information on IVS and SVS. I complied the attached "presentation" to identify the major items provided/discussed. Please let me know if you have questions.

The Monthly report we provide to you all based on the Admin Order has all the information on that 1:00 pm monthly Recovery status call with the exception of the HEPA filter change outs. The HEPA filter change out status is provided to Susan LucasKamat typically ahead of the scheduled change out and I assume she informs you all within a day or two. If that does not occur let me know and I can ensure you receive that from me.

Once again if you have questions please call me and if I can't answer the question I know folks who probably can. For your information, I am going to send a subset of this presentation to Nick Stone to address his different request on " why IVS and SVS are linked operationally to each other".

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150913

Interim Ventilation System (IVS) & Supplemental Ventilation System (SVS)

"A Presentation"

Purpose of This Presentation

- During a monthly 1:00 PM Recovery Status call held on Tuesday 8/25/15 a presentation was requested during the next monthly phone call. The format of the monthly 1:00 PM Recovery Status call is not conducive for presentations as requested.
  - Here is how the item was captured, "…requested a presentation during the next monthly phone call explaining why IVS and SVS are linked operationally to each other. NMED (Smith) is interested in design features that isolate the clean side from the contaminated side."

Executive Summary
IVS & SVS Primary Functions

- Current Status—the underground ventilation system remains in filtration mode at approximately 60,000 cfm. Filtration mode directs the underground exhaust air through two high efficiency particulate air (HEPA) filter units located on the surface in the exhaust filter building.
- The primary functions of the interim ventilation system (IVS) is to:
  - provide an additional capacity of 54,000 cfm above the existing capacity of 60,000 cfm, for a total of 114,000 cfm in filtration mode
  - remove the airborne radioactive particulate from the exhaust air through HEPA filtration before the air is released to the environment
  - allow redundancy for fan maintenance and change out of HEPA filters
- The primary functions of the supplemental ventilation system (SVS) is to:
  - to minimize dust particulate loading on the HEPA filters since the construction air split will take clean air from the surface and will exhaust salt dust laden air directly through the Salt Handling Shaft
  - to provide additional air into the underground in conjunction with IVS to augment air flow in portions of the underground
  - to facilitate underground recovery activities such as maintenance activities in the north area, mining, drilling, bolting and salt handling.
- Design features already exist in the WIPP Underground Ventilation System Design Description (SDD). The major SVS U/G ventilation design features will be associated with adjustments to set points and alarms, monitoring, regulators, bulkheads, and interlocks.

Documentation Previously Provided – Underground Ventilation & IVS / SVS

- WIPP Underground Ventilation System Design Document, SDD-VU00 Provided March 2014
- Notice of Planned Alteration to the Permitted Facility, Submitted on August 26, 2014
- WIPP Mine Ventilation Plan, Rev 38 Provided February 2015
- Notification of Planned Change to the Permitted Facility, Submitted April 22, 2015
- Monthly Report for the Reporting Period ending April 30, 2015, Submitted May 29, 2015
- Monthly Report for the Reporting Period Ending May 31 , 2015, Submitted to NMED June 29, 2015
- Monthly Report for the Reporting Period Ending July 31, 2015, Submitted to NMED August 31, 2015

WIPP System Design Document for Underground Ventilation – SDD VU00

- Design features can be found in the existing WIPP Underground Ventilation System Design Description (SDD) under, but not limited to the following sections:
  - 2.0 DESIGN REQUIREMENTS (about 12 pages),
  - 3.0 DESIGN DESCRIPTION (about 11 pages)
    - Instrumentation and Control
    - System Interfaces (e.g., monitoring & detection)
  - 5.0 SYSTEM LIMITATIONS, SETPOINTS, AND PRECAUTIONS
    - Set Points and Alarms &
    - Interlocks
- The SDD is on the NMED website (https://www.env.nm.gov/NMED/Issues/WIPP_docs/System_Design_Description_for_Underground_Ventilation.pdf)
- The major SVS U/G ventilation design features will be associated with adjustments to set points and alarms, monitoring, regulators, bulkheads and interlocks
- There will likely be an update to parts of the Underground Ventilation SDD for SVS implementation

WIPP Underground Ventilation System Design Document on NMED website

This SDD-VU00 includes six sub-systems which cover specific aspects of the Underground Ventilation System (UVS). These subsystems are:

- VU01 - Exhaust Fans and Filters
- VU02 - Installed Auxiliary Fans & Ducts
- VU03 - Ventilation Control, Bulkheads & Air Regulators
- VU04 - Local Temporary Ventilation
- VU05 - Air Intake Flow Paths and Exhaust
- VU06 - Remote Monitoring and Control

Examples of Design Features for Instrumentation

Listed below are some of the sections with examples where Underground Ventilation SDD design features are already in place that "isolate" the existing air flow circuits in the underground:

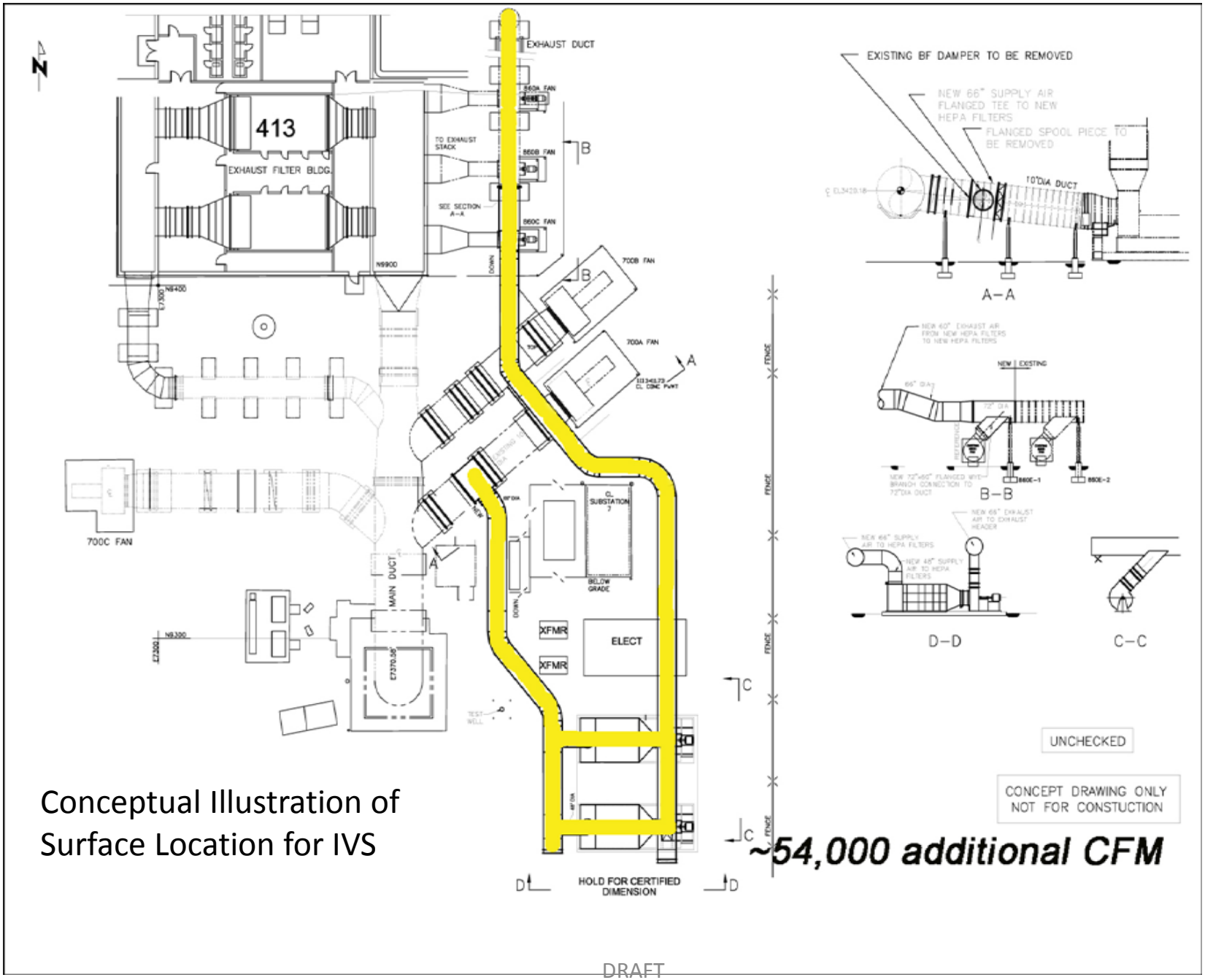
- 2.8.1 The UVS instrumentation and controls shall be designed to:
  - A. Control the start and stop of the UVS equipment to provide the required underground environmental conditions for normal operations.
  - B. Actuate valves, dampers and main regulators that control the flow of air underground.
  - C. Provide local controls for major components with limited manual and automatic controls at the Central Monitoring Room.
  - D. Provide regulators, bulkhead doors, local fans etc., as needed to balance and regulate the overall underground flow between working areas.
  - E. Initiate the automatic operation of the fans, dampers and shut off valves in the filtration system when off-normal concentrations of airborne radioactivity are indicated by continuous air monitors (CAMs) located in the underground.
  - F. Reconfigure the UVS following notification of underground fire, so as to restrict and redirect the spread of smoke resulting from the spread of fire and assist in the evacuation of underground personnel. This operational sequence shall not be automatic. It requires a considered decision by Operations.
  - G. Monitor the status of valves, dampers, motors, filters, doors, differential air pressures across bulkheads, air flow velocities and psychrometric conditions at selected stations.
  - H. Provide alarms in the event of unacceptable operating conditions.

- 5.4 Interlocks

Notice of Planned Alteration to the Permitted Facility, Submitted on August 26, 2014

The IVS consists of two skid mounted fan and filter units that will be added to the UVS in order to augment the current filtration capacity of the UVS. The current filtration capacity is 60,000 cubic feet per minute (cfm). The primary functions of the augmented ventilation system will be to remove the airborne radioactive particulate from the exhaust air through high efficiency particulate air (HEPA) filtration before the air is released to the environment and to provide additional ventilation air flow in order to achieve up to 114,000 cfm in filtration mode. A draft conceptual drawing of the augmented ventilation system is attached for information.

The Permittees anticipate the installation of the IVS will be early in calendar year 2015. Additional filtered ventilation is needed to support some underground recovery activities. For example, limited waste handling operations may be conducted in the future under the augmented ventilation system in order to dispose of underground derived waste and to dispose the waste in storage in the Waste Handling Building. Upon completion of this alteration, the Permittees will provide a letter with a New Mexico registered professional engineer's statement that the facility has been constructed pursuant to the design and applicable Permit requirements and provide the NMED the opportunity to inspect the alteration to the ventilation system pursuant Permit Part 1, Section 1.7.11.

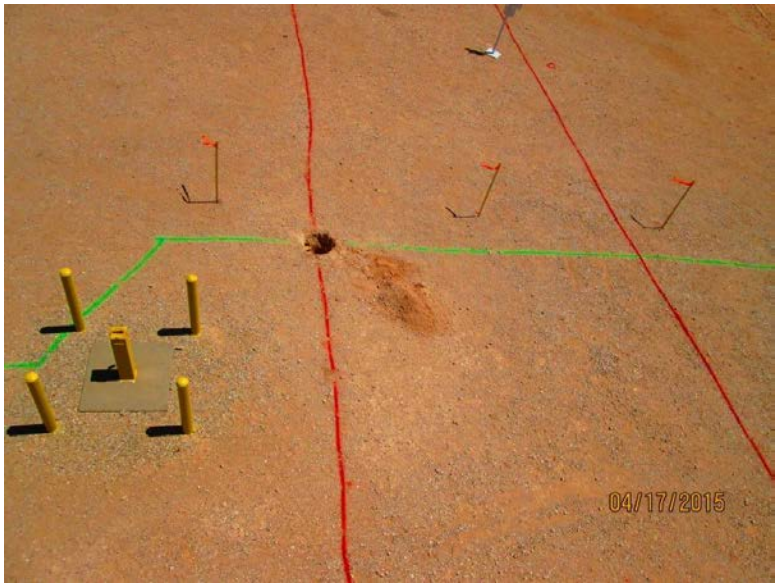


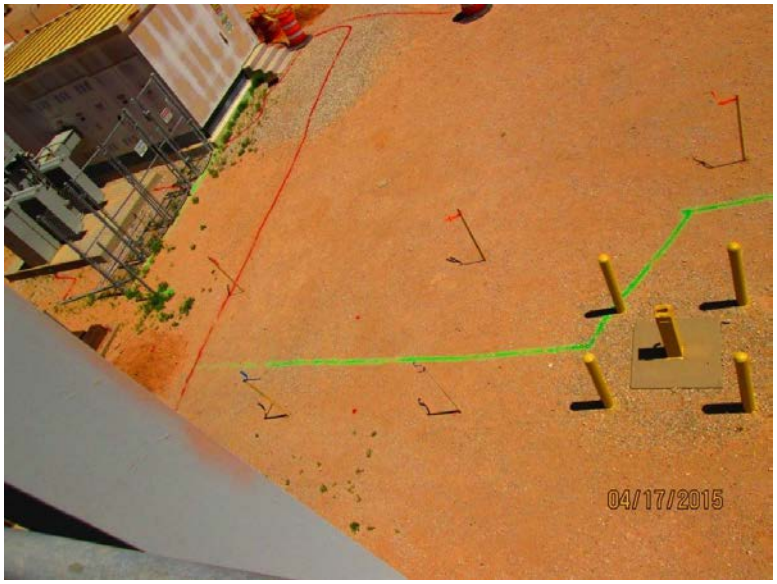
Conceptual Illustration of Surface Location for IVS

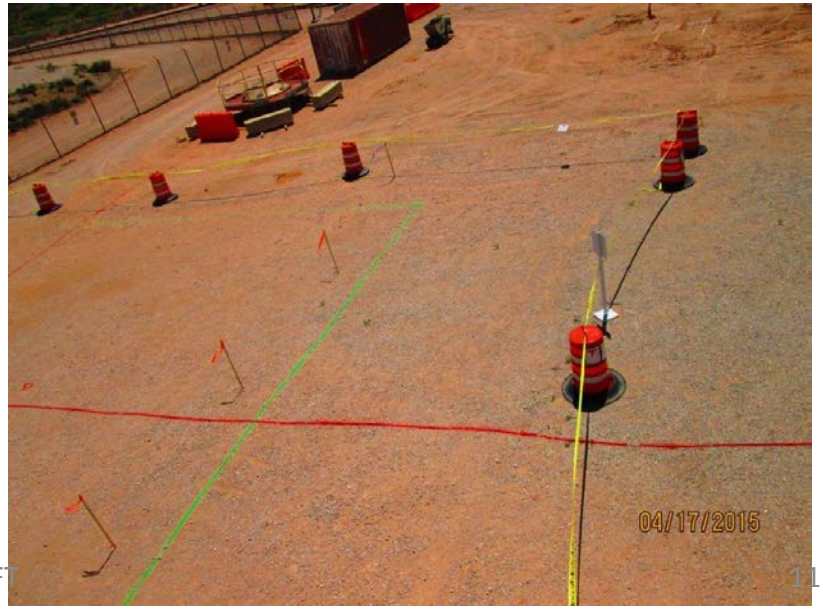
Monthly Report for the Reporting Period ending April 30, 2015, submitted May 29, 2015

- *Also during this reporting period, survey work for the interim ventilation system (IVS) commenced in preparation for excavation at the site. Concrete pads will be poured for the new fan/filter units. Fabrication of the ductwork for the IVS is 90% complete. The IVS will augment the existing underground ventilation system and provide additional airflow for underground operations. Photographs in Attachment 10, Interim Ventilation System Prep Work, depict work activities related to IVS.*

Attachment 10. Interim Ventilation System – Survey and Site Preparation Work







Monthly Report for the Reporting Period Ending May 31 , 2015, Submitted to NMED June 29, 2015

- Page 7 of 82
- *Also during this reporting period, work is continuing on the interim ventilation system (IVS). This system includes two skid-mounted HEPA filter units and fan units which will be placed on concrete foundations and connected to ductwork that exits the underground. The IVS will augment the existing underground ventilation system and provide additional airflow for underground operations. Initial excavation for the two fan/filter concrete pads and electrical structure is complete. Photographs in Attachment 10, Interim Ventilation System Prep Work, depict work activities related to the IVS.*

Interim Ventilation System – Excavation and Foundation Work

Notification of Planned Change to the Permitted Facility, Submitted April 22, 2015

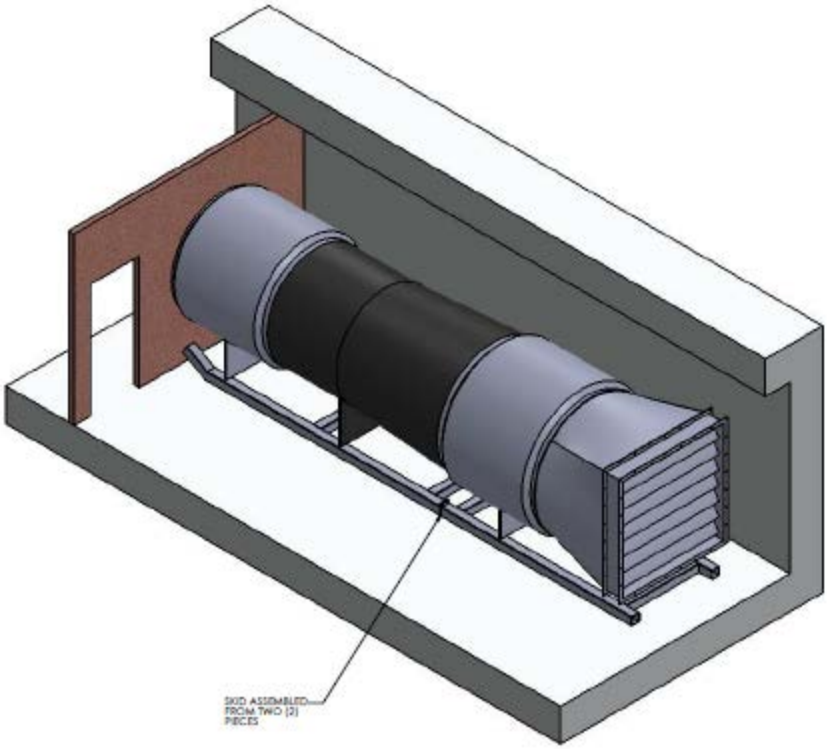
The purpose of this letter is to notify you of a planned physical alteration to the permitted facility in accordance with Permit Part 1, Section 1. 7.11 (20.4.1 .900 New Mexico Administrative Code incorporating Title 40 of the Code of Federal Regulations §270.30(1)). The U.S. Department of Energy and Nuclear Waste Partnership LLC, collectively referred to as the Permittees, intend to upgrade the underground ventilation system (UVS) by adding the **supplemental ventilation system (SVS).** The UVS is broadly described in Permit Attachment A2, Section A2-2a(3).

The SVS consists of an auxiliary fan installed in the S-90 drift to provide additional ventilation air to the underground. The SVS system is designed to work in conjunction with the Interim Ventilation System. Supplemental ventilation is needed to facilitate underground recovery activities such as maintenance activities in the north area, mining, drilling, bolting and salt handling. Use of the SVS will minimize dust particulate loading on the High Efficiency Particulate Air (HEPA) filters since the construction split will take clean air from the surface and will exhaust salt dust laden air directly through the Salt Handling Shaft. Ventilation air through the disposal area will continue to be routed through HEPA filtration. Conceptual drawings depicting the SVS auxiliary fan and underground ventilation flow paths are enclosed for information.

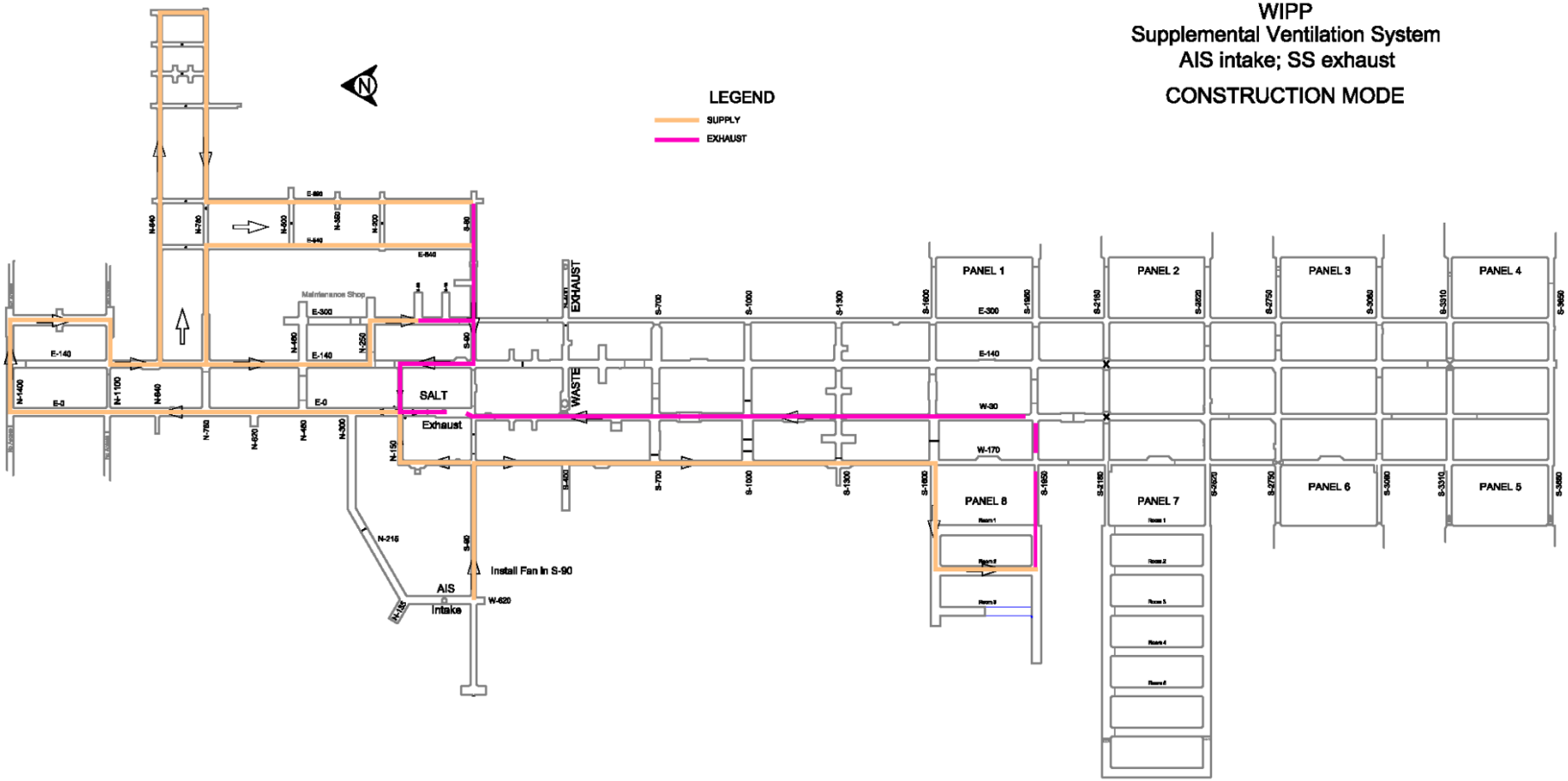
The Permittees anticipate that the installation of the auxiliary fan to occur in calendar year 2015. Upon completion of this alteration, the Permittees will provide the New Mexico Environment Department (NMED) a letter with a New Mexico registered professional engineer's statement that the facility has been altered in compliance with the Permit and provide the NMED the opportunity to inspect the alteration pursuant Permit Part 1, Section 1. 7 .11. The Permittees anticipate submitting a Class 1 Permit modification to revise descriptive text to address changes to the UVS.

Conceptual Drawing of an Auxiliary Fan

Supplemental Ventilation System

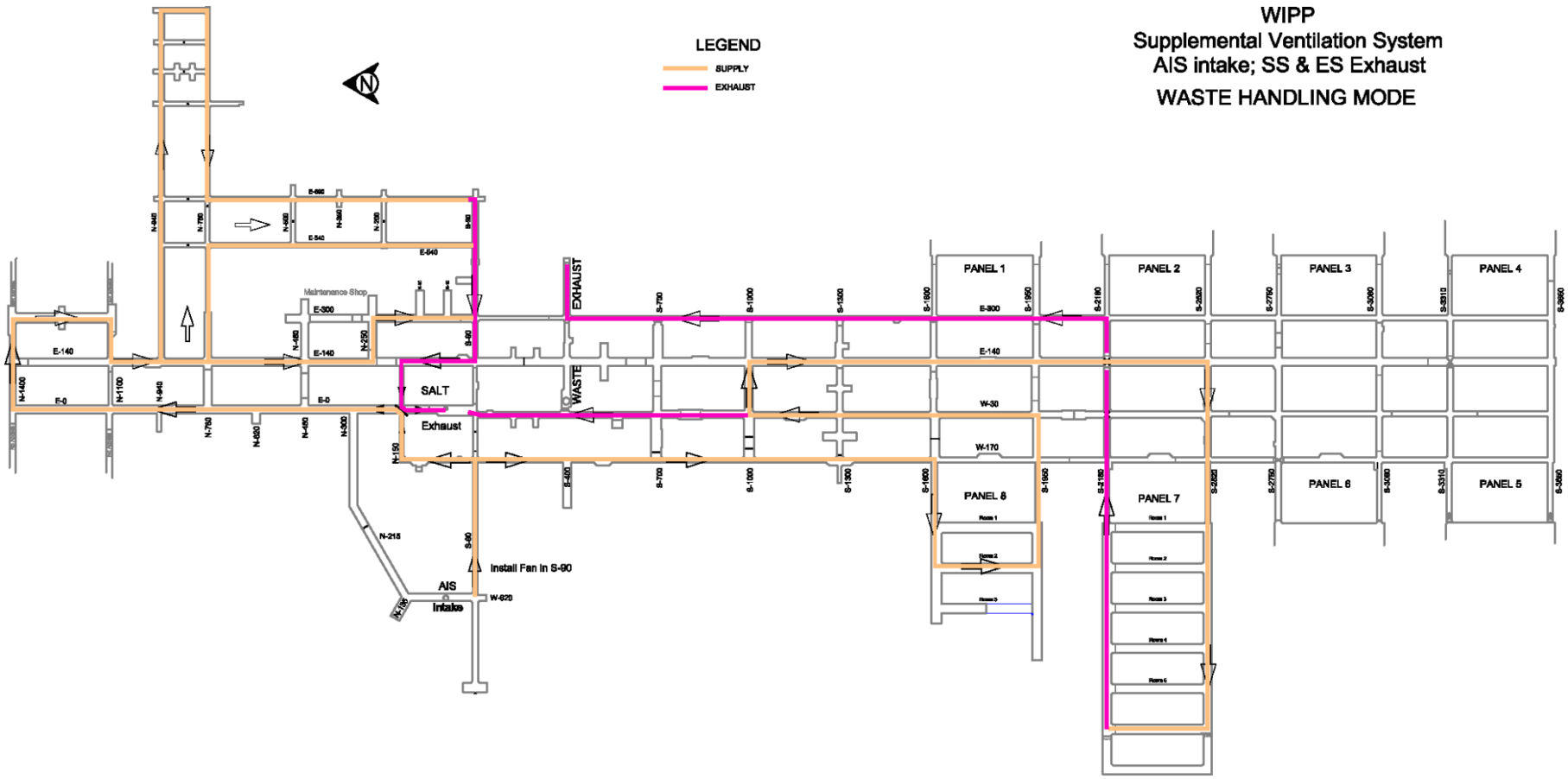


WIPP
Supplemental Ventilation System
AIS intake; SS exhaust
CONSTRUCTION MODE



CONCEPTUAL DRAWING ONLY
NOT FOR CONSTRUCTION

WIPP
Supplemental Ventilation System
AIS intake; SS & ES Exhaust
WASTE HANDLING MODE



CONCEPTUAL DRAWING ONLY
NOT FOR CONSTRUCTION

Town Hall
July 9, 2015

The supplemental ventilation system (SVS) will be placed underground in the S-90 drift

IVS Fan/Filter units received at the WIPP facility

Concrete foundation for IVS

Town Hall
September 3, 2015

- SVS fan downloaded into the underground
- Installation in the S90 drift (air intake drift)

WIPP Mine Ventilation Plan, Rev 38 Provided February 2015

- Page 1, Section 2.0. This plan satisfies the requirements for a mine ventilation plan as required by Title 30 Code of Federal Regulations (CFR) §57.8520, "Ventilation Plan," and the "New Mexico Safety Code for All Mines." It is based on current plans, conditions, and assumptions concerning the operation of the WIPP facility. This document will be revised at least annually to reflect any ventilation system changes.
- Page 9, Section 8.1. Limited air flow in the underground limits the number of pieces of diesel equipment that may be operated at any one time. When diesel equipment is used for recovery work in the underground, *regulators and bulkheads may be opened or closed as needed to move the limited air flow in the underground to specific work areas and/or ventilation circuits*.

Notes from Figure 54-Z001-W2

1. DRIFT WIDTHS NOT TO SCALE, ENLARGED 2X FOR CLARITY.

2. EXCAVATION REFLECTS PROPOSED STATUS AS OF 09/02/14

3. AIRFLOWS ARE NOMINAL AS OF THE MOST RECENT TEST & BALANCE COMPUTER CORRELATED MODEL. UNDERGROUND FACILITY OPS HAS THE AUTHORIZATION TO RECONFIGURE THE UNDERGROUND AIRFLOWS TO SUPPORT OPERATIONAL NEEDS.

4. ONE 860 FAN IN PARALLEL OPERATION WITH TWO INTERIM VENTILATION FANS WILL PRODUCE 114 AKCFM THROUGH THE DISPOSAL SIDE DF THE SYSTEM. THE UG BOOSTER FAN WILL PROVIDE FRESH AIR TO THE WASTE DISPOSAL CIRCUIT.

The notes section is important because it provides the reader with an explanation of what this figure represents and what it does not represent. The airflow is not an absolute. The airflow is based on "computer correlated model". Underground Operations is authorized and will make adjustments to regulators and/or bulkheads to reconfigure the U/G airflows to support the operational needs.

IVS & SVS

- We have provided regulatory documentation and held several discussions over the past 12 months on different aspects of IVS and SVS. Detailed discussions on IVS/SVS occurred the week of July 13th, 2015.
- We have discussed the planned change notifications (8/26/14 & 4/22/15 Notification letters), the surface location of IVS, shared pictures of IVS and SVS and updates of the progress on the IVS foundation, estimated increase in underground ventilation (e.g., IVS ~54,000 cfm), and we also have provided discussions on non-regulatory related topics such as the safety basis (10 CFR 830) context and background for IVS/SVS & MSHA (30 CFR part 57) particulate requirements for diesel equipment.

Summary

- The primary functions of the interim ventilation system (IVS) is to:
  - provide an additional capacity of 54,000 cfm above the existing capacity of 60,000 cfm, for a total of 114,000 cfm in filtration mode
  - remove the airborne radioactive particulate from the exhaust air through HEPA filtration before the air is released to the environment
  - allow redundancy for fan maintenance and change out of HEPA filters
- The primary functions of the supplemental ventilation system (SVS) is to:
  - to minimize dust particulate loading on the HEPA filters since the construction air split will take clean air from the surface and will exhaust salt dust laden air directly through the Salt Handling Shaft
  - to provide air into the underground in conjunction with IVS to augment air flow in portions of the underground
  - to facilitate underground recovery activities such as maintenance activities in the north area, mining, drilling, bolting, salt handling and waste handling.
- Design features:
  - are in the WIPP Underground Ventilation System SDD; a revision to the SDD is likely for SVS
  - major SVS U/G ventilation design features will be associated with adjustments to set points and alarms, monitoring, regulators, bulkheads, and interlocks.