SUMMARY OF PUBLIC COMMENTS RECEIVED
ON THE DRAFT AIR PERMIT FOR
PUNA GEOTHERMAL VENTURE
35 MW (NOMINAL) GEOTHERMAL POWER PLANT,
WELLFIELD, AND GEOTHERMAL EXPLORATORY/DEVELOPMENTAL WELLS
LOCATED AT 14-3860 KAPOHO-PAHOA ROAD, PAHOA, HAWAII

I. OVERVIEW

Pursuant to Hawaii Administrative Rules, Chapter 11-60.1, a public comment period was held on August 19, 2015, to October 19, 2015. In addition to the public comment period, a public hearing was held on September 28, 2015, at the Pahoa High and Intermediate School cafeteria on the island of Hawaii. The purpose was to receive oral and written comments on Draft Noncovered Source Permit (NSP) No. 0008-02-N. Approval and issuance of the air permit would allow Puna Geothermal Venture (hereinafter referred to as "PGV") to operate the existing power plant, wellfield, and drill additional geothermal exploratory/developmental wells.

During the public comment period and public hearing, the Department of Health, Clean Air Branch (hereinafter referred to as "DOH-CAB"), received comments from forty-six commenters. The breakdown of the type of comment provided during the public comment period and public hearing is provided below.

Type of Comment Provided	Number of Commenters
Oral and Written	14
Oral Only	14
Written Only	18

These comments were consolidated and are presented in the following sections. Section II of this document describes the changes made to the draft air permit based on the public comments. Section III of this document presents the public comments and the DOH-CAB's responses. Section IV of this document presents comments that are considered outside of the scope of the air permit review process and the DOH-CAB's responses.

The DOH-CAB also received eighteen requests for a contested case hearing. Section V of this document presents the contested case hearing comments and the DOH-CAB's responses.

In addition, on December 16, 2016, upon the direction of the Hearings Officer, a revised proposed permit was sent to the eighteen commenters who had requested a contested case hearing. The revised proposed permit incorporated the revisions to the draft permit found in Section II of this document. The DOH-CAB requested the eighteen commenters to submit any additional comments by January 23, 2017. Three commenters submitted additional comments.

II. REVISIONS TO THE DRAFT PERMIT

The following revisions were made to the draft permit. As is custom when revising regulatory language, new language is underlined, while [deleted language is shown in brackets].

1. Attachment IIA, Special Condition No. C.3 is revised as follows:

   3. The permittee shall operate and maintain a minimum of three (3) meteorological monitoring stations, three (3) ambient air quality monitoring stations for hydrogen sulfide and one (1) PM_{10} monitor. The three (3) ambient air quality monitoring stations shall be operated at all times, except during periods of maintenance, repair, or quality assurance/quality control procedures of the ambient air quality monitoring stations, and unforeseen events beyond the control of the permittee, including, but not limited to, the following: acts of nature, acts of war or terrorism, or equipment failure of the ambient air quality monitoring stations. Only one (1) of the ambient air quality monitoring stations shall be taken out of service for maintenance, repair, or quality assurance/quality control procedures at any one time. The PM_{10} monitor shall only be operated during drilling operations, flow testing, and well cleanouts. The permittee shall maintain a file of all measurements collected from and performed on the ambient air monitoring stations, including the monitoring system performance evaluations; calibration checks; and adjustments and maintenance performed on the system or devices. The measured data shall meet U.S. EPA capture requirements and quality assurance guidelines. As a minimum, a U.S. EPA quality control [assurance] check shall be conducted on each monitoring station every other day.

      The three (3) ambient air quality monitoring stations shall be equipped with emergency backup generators in the event of power outages to the monitoring stations. The emergency backup generators shall have the capability to supply emergency power to the ambient air quality monitoring stations to ensure that the ambient air quality monitoring stations have power to operate at all times. The permittee shall also maintain a spare hydrogen sulfide analyzer for the ambient air quality monitoring stations.

2. Added Attachment IIA, Special Condition No. D.9. See Section III, Item No. 9 of this document for additional information.

   9. The permittee shall comply with HAR §11-60.1-178, Accidental releases, including the preparation, submittal, and implementation of a risk management plan pursuant to Section 112(r) of the Clean Air Act. The risk management plan shall be submitted to U.S. EPA Region 9 as required by Section 112(r) of the Clean Air Act.

III. RESPONSE TO COMMENTS

1. *Comment:*

Several commenters stated that the probe sample height for the ambient monitoring stations is not the correct height to monitor for hydrogen sulfide (H_2S).

Response:

The three PGV H_2S ambient monitoring stations have been designed and sited in order to ensure that all probes and sensors meet or exceed the requirements and guidelines in EPA's May 1987 publication "Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)." These criteria are:

1. Should be greater than 20 meters from trees.
2. Distance from inlet probe to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the inlet probe.
3. Must have unrestricted airflow 270° arc around the inlet probe, or 180° if probe is on the side of a building.
4. No furnace or incineration flues should be nearby.
5. Probe inlet should be 3 to 15 meters from ground level, and greater than 1 meter from supporting structures. Note that the actual sampling intake at each site is located at an elevation of about 4 meters above ground level and 2 meters above the top of the sampling shelter.

2. *Comment:*

Several commenters stated that there is an insufficient number of ambient monitoring stations to monitor for H_2S given the size of the property and the variable wind conditions.

Response:

The DOH-CAB believes that the three H_2S ambient monitoring stations required by the NSP for PGV to operate provides sufficient coverage to demonstrate compliance with the permit's ambient air limits. Based on meteorological patterns and an ambient air modeling analysis, these H_2S ambient monitoring stations were strategically located at these particular locations for the following reasons:

Southeast Fenceline Monitoring Site A
The southeast fenceline was selected as the location for Monitoring Site A. This location was selected due to the proximity of a cluster of homes that are topographically downgradient from the PGV facilities. H_2S is denser than air and is expected to flow down the topographical gradient during periods of low wind conditions. H_2S concentrations, associated with nocturnal drainage flow from the project area toward the southeast, are expected to pass through this area. In addition to this type of drainage flow, daytime winds from the northwest are occasionally

observed in the project area. Monitoring Site A is used to observe the impacts of H_2S emissions under this type of meteorological pattern. Since meteorological events influence the H_2S emissions at this site, meteorological monitoring equipment was added to this station in August 1992.

Southwest Fenceline Monitoring Site B

The southwest fenceline was selected as the location for Monitoring Site B. This location was selected due to the predicted maximum H_2S impact area from well venting activities at wellpad E. This wellpad is the closest to the project boundary and is expected to have greater off-site impact than similar activities at the other wellpads.

Monitoring Site B is also in the prevailing downwind direction of the northeast trade winds. These winds are the most frequently occurring wind direction in the project activity areas. H_2S emissions from the facility during normal operations are usually fugitive in nature and released at or near ground level. Monitoring Site B was strategically located to observe this condition and measure maximum H_2S concentrations under the most frequently occurring meteorological conditions. Meteorological monitoring equipment has been located at this station since the startup of the monitoring program. This site has good exposure and provides data that are representative of the wind patterns in the project and surrounding areas.

West Fenceline Monitoring Site C

Monitoring Site C was installed at the west fenceline location in response to a request by the DOH-CAB. This location was selected due to the proximity of residential areas. Although the site is not in the prevailing downwind direction from the PGV facilities, easterly winds that could carry fugitive emissions to this area are not uncommon.

3. *Comment:*

Several commenters stated that there should be emergency backup power for the ambient monitoring stations.

Response:

The draft NSP adds more specific language to the requirement for emergency backup power for the ambient monitoring stations in the event of a power outage, see Attachment IIA, Special Condition No. C.3. The ambient monitoring stations are currently equipped with LPG-fired emergency generators for emergency backup power in the event of a total loss of power to PGV from HELCO.

4. *Comment:*

Several commenters stated that the quality assurance and quality control for the ambient monitoring stations are inadequate.

Response:

The permit requires that U.S. EPA quality assurance and quality control procedures are employed to ensure proper maintenance of the ambient monitoring stations. PGV currently exceeds the U.S. EPA required quality assurance and quality control requirements by performing daily calibrations instead of the U.S. EPA required calibrations of once every two weeks.

5. *Comment:*

Several commenters stated that a third party should be used for data collection at the ambient monitoring stations.

Response:

The DOH-CAB believes that it is not necessary to require, in the draft NSP, that PGV use an independent third party to conduct its monitoring, recordkeeping, and reporting requirements. In all of the covered and noncovered source permits issued by the DOH-CAB, the permittee is required to perform all permit monitoring, recordkeeping, and reporting requirements. All permit recordkeeping and reporting is certified to be true, accurate, and complete to the best knowledge of the permittee. This is true regardless of whether the permittee performs its own permit monitoring, recordkeeping, and reporting or hires a third party contractor to perform the permit monitoring, recordkeeping, and reporting as is the case for PGV in its data collection at the ambient monitoring stations. There are strict civil and criminal penalties for the submission of fraudulent data. In addition, the draft NSP requires that the DOH-CAB to have direct computer access to the ambient air quality monitoring stations through telecommunication lines. The computer access allows the downloading of the current and the previous 24-hour raw hydrogen sulfide ambient air quality and meteorological data from the ambient monitoring stations.

6. *Comment:*

Several commenters stated that the draft NSP should require testing for heavy metals, silica, and caustic soda whenever there is a release.

Response:

The draft NSP and the regulations on which this draft NSP is based on are intended to establish conditions under which PGV must operate to ensure compliance with state and federal air regulations during normal facility operations. During an emergency or upset condition that results in a release from the emergency steam release facility (ESRF) or from the pressure relief valves, it would be impractical to require

PGV to perform testing or sampling for heavy metals, silica, and caustic soda under an emergency or upset condition for the following reasons:

a. The collection of samples in order to perform the chemical tests would be difficult to perform since it is a time consuming and precise process.
b. It might be impossible or near impossible to collect samples under these conditions and the collection of samples could endanger the health, welfare, and safety of the person(s) collecting the samples.
c. Caustic soda or sodium hydroxide is used for the abatement of H_2S, and to restrict its usage could increase the dangers from H_2S exposure.

However, if there is a toxic release due to an emergency or upset condition that presents a substantial endangerment to the public health or the environment, PGV is required to notify the Hawaii County Civil Defense Agency (CDA), the Hawaii County Fire Department, and the Department of Health, Hazard Evaluation and Emergency Response (hereinafter referred to as "DOH-HEER") Office . Any subsequent health effects would best be assessed by the DOH-HEER Office's toxicologist.

7. *Comment:*

Several commenters stated that the permit should require testing of the source directly instead of using ambient monitoring stations. The draft NSP lacks a requirement for source monitoring which if combined with appropriate modeling of the real time weather conditions should be used to provide the public and emergency crews the information needed to make appropriate decisions about safety or lack thereof.

Response:

PGV is designed as a binary cycle geothermal power plant in which geothermal fluids are not used directly to power the turbines, but uses pentane as the working fluid to power the turbines. As such, under normal operating conditions, only small amounts of fugitive H_2S are emitted by the power plant and wellfield. Therefore, the amount of H_2S emitted by the facility is estimated to be well under 100 tons per year, which defines a major source. There are, however, 1-hour and 24-hour H_2S ambient air limits in which the facility has to comply with on the draft NSP. The use of H_2S ambient monitoring stations is the most practical means to regulate H_2S emissions with respect to these H_2S ambient air limits for this facility, due to the impracticality of directly monitoring the emergency steam release facility (ESRF) and the approximately sixty (60) emergency-type pressure relief valves throughout the power plant and wellfield. The draft NSP regulates emissions from a facility at all times including during periods of emergencies and operational upsets to ensure compliance with the draft permit's H_2S ambient air limits. The Hawaii County Civil Defense Agency (CDA) is responsible for all public safety and evacuations during periods of emergencies and would be best able to determine the evacuation area using CAMEO (Computer Aided Management of Emergency Operations) software.

8. *Comment:*

Several commenters stated the following concerning emergency response:

- The emergency response plan should be updated every 1-2 years.
- The permit must address situations such as natural disasters and provide PGV with clear guidelines to prevent a recurrence of these sorts of situations.
- Emergency response needs to be addressed in the permit.
- The PGV Emergency Response Plan Appendix H (describing upset emission scenarios) has not been updated for several decades. There is no requirement in the draft NSP that compels PGV to maintain an up-to-date emergency response plan.
- The current draft NSP includes no requirement for PGV to notify the Puna Pono Alliance or Hawaii County Civil Defense, both of which qualify as LEPC, when a release occurs.
- We need real time alerts and monitoring done at all the schools and residential areas. There is no evacuation plan for the schools here or any in lower Puna regarding a blow-out or leaks.
- We belong in the front of the phone book like everyone else. There should be something that tells people what can you do.
- I'd really like to get a text whenever there is a blow-out at PGV.
- DOH regulators should conduct on-site monitoring inspections and work with the community to confirm or deny releases.
- PGV should be required to warn Hawaii County Civil Defense and residents when releases occur.

Response:

In 1989, the Hawaii County Planning Commission required PGV to prepare an emergency response plan, as Condition No. 26 of PGV's Geothermal Resource Permit GRP 87-2. PGV wrote and submitted its emergency response plan to the Administrator of the Hawaii County Civil Defense Agency (CDA), who then reviewed and approved it in August 1990.

Therefore, PGV's Emergency Response Plan (ERP) is a Hawaii County Planning Commission requirement that is completely separate from the NSP process. In approving or disapproving a NSP application, the DOH-CAB, by law, can only consider a facility's compliance with the applicable requirements covered under Hawaii Administrative Rules (HAR), §11-60.1-3. The Hawaii County Planning Commission's required ERP cannot be considered in the DOH-CAB NSP process. Although the Hawaii County CDA ERP is not an applicable requirement under the DOH-CAB NSP process, the permittee is still responsible for complying with the ERP, and any other applicable federal, state, and county laws and/or requirements.

According to PGV's ERP, in the event of an exceedance of the H_2S permitted limits or ambient air concentrations due to an emergency or upset conditions, PGV is required to immediately notify Hawaii County CDA. The Hawaii County CDA has the responsibility of providing the warning to, and to effect the implementation of, the evacuation of any residents or other members of the public from the appropriate hazard area surrounding the site, as necessary. PGV will provide assistance in warning residents, as directed by the Hawaii County CDA. The on-site monitoring for H_2S in the event of a release is usually performed by the Hawaii County CDA or Hawaii County Fire Department.

9. *Comment:*

Several commenters stated the following concerning reporting under the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act (CAA):

- Hawaii State Department of Health has refused to protect my community and has abrogated its responsibilities under the Hazardous Chemicals Reporting: Community Right To Know Act require stationary sources to maintain a current inventory of hazards, to accurately inform the community of those hazards.
- Hydrogen sulfide (H_2S) is among the toxic gases released by PGV. Hydrogen sulfide is a concern from an accidental release standpoint, and is listed under the accidental release provisions in Section 112(r) of the Clean Air Act. The H_2S concentration in superheated geothermal fluids released during upset conditions exceeds the legal dosage threshold, and the quantities released during major upsets exceed the reporting threshold.
- The General Duty Clause of Section 112(r) and 40 CFR Part 370, the Hazardous Chemical Reporting: Community Right-to-Know Act require stationary sources to maintain a current inventory of hazards, inform the community of those hazards, and facilitate the development of state and local emergency response plans. PGV exacerbates the problem by redacting "community right-to-know" information on hazardous chemical stored at their site.
- Since 2012 the EPA requires reporting H_2S under the Toxics Release Inventory (TRI) Program (Federal Register/Vol. 76 No. 216, page 69136). The draft NSP lacks any requirement to file TRI reports. Hydrogen sulfide is also included on the TRI list of chemical reportable under the Emergency Planning and Community Right to Know Act (EPCRA section 313; 40 CFR Part 372, Subpart D). Section 302 of EPCRA also requires facilities to notify state and local emergency planning committees (LEPC) when toxic substances such as H_2S are released.
- Thus, PGV is left to monitor itself and is not required to provide to Hawaii County or the affected public hazardous chemical inventory information or data on the release of toxins into the environment.
- The draft NSP does not address the handling of silica particulates, which can become airborne. Silica particulates, contaminated with heavy metals and radionuclides, are produced during pipeline cleanout operations. Protocols for handling, storage, and disposition of these materials should be defined in the NSP and reported under CAA and EPCRA requirements.

- The draft NSP lacks any requirement for PGV to file TRI reports for the EPA or the Community Right to Know Act.
- The draft NSP illegally allows PGV to hide records of hazardous waste stored on site and or released into the environment.
- The Emergency Planning and Community Right-To-Know Act requires local emergency planning communities, including the State of Hawaii Department of Health, to prepare for and respond to releases of toxic gas. Why do you not take the health effects of hydrogen sulfide seriously?
- Geothermal fluids contain numerous toxic chemical and heavy metals as well as silica. In addition, caustic soda is use in the H_2S abatement system. Any and all of these can be carried airborne when steam is released. In addition, silica particles, contaminated with heavy metals and radionuclides, are produced during pipeline cleanout operations. The draft NSP does not address protocols for the handling, storage, and disposition of these material or reporting under CAA and EPCRA requirements.
- Hydrogen sulfide was finally added to the EPA list of reportable toxins in 2012. Those toxins are to be measured in pounds released. How does the Department of Health monitor H_2S? Is it in pounds?

Response:

PGV's NSP is administered by the DOH-CAB under specific emission source permitting sections of the U.S. Clean Air Act (CAA), Chapter 342B, Hawaii Revised Statutes (HRS), and Chapter 11-60.1, Hawaii Administrative Rules (HAR).

The Emergency Planning and Community Right-to-Know Act (EPCRA) is not administered by the DOH-CAB, and it is not an applicable requirement under the relevant air pollution emission sources of the CAA, Chapter 342B, HRS, and Chapter 11-60.1-1, HAR, utilized in the DOH-CAB noncovered source permitting process.

The comment is referencing Title III of the Superfund Amendments and Reauthorization Act (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA) or the Community Right-to-Know regulation. In 1993, the State of Hawaii enacted the Hawaii Emergency Planning and Community Right-to-Know Act (HEPCRA), which is modeled after federal EPCRA. The DOH-CAB, and its covered and noncovered permitting process, has nothing to do with implementing HEPCRA. To implement HEPCRA requirements, regulations provide for the formation of:

- The Hawaii State Emergency Response Commission (HSERC). The HSERC is responsible for the implementation of HEPCRA requirements for the State. The HSERC is housed within the DOH-HEER Office for administrative purposes.

- Local Emergency Planning Committees (LEPC). The LEPC is made up of emergency management agencies, responders, industry, and the public. They work to understand chemical hazards in the community, develop emergency plans in case of accidental release, and look for ways to prevent chemical accidents. There are currently four LEPCs in Hawaii, one to represent each County.

The DOH-HEER Office, which is a separate branch from the DOH-CAB, receives HEPCRA reports and manages HEPCRA data on behalf of the HSERC. The DOH-HEER Office also provides technical and regulatory assistance to businesses, local emergency planning committees and the public.

Section 313 of the EPCRA requires that the EPA's Toxic Release Inventory (TRI) program requires certain facilities to complete a Form R report annually for specific chemicals. This requirement applies only to facilities of specific SIC or NAICS codes. In PGV's case, PGV has a NAICS code of 221119 (or SIC code of 4911), "Other Electric Power Generation." The applicable facilities within this code are limited to facilities that "combust coal and/or oil for the purpose of generating power for distribution in commerce." PGV does not combust coal or oil, it uses renewable geothermal heat to generate electricity. Therefore, due to this restricted legal requirement, PGV is not required to conduct TRI reporting and complete a Form R report.

The CAA section 112(r) – Prevention of Accidental Releases, includes the General Duty Clause under CAA section 112(r)(1) and Accident Prevention under CAA Section 112(r)(7). 40 CFR Part 68 – Chemical Accident Prevention Provisions, is the federal EPA regulation that implements CAA Section 112(r)(7) for accidental release prevention. This regulation requires covered facilities to develop and implement a Risk Management Program that includes a submittal of a risk management plan. EPA Region 9 is the implementing agency for the General Duty Clause and the Risk Management Program in Hawaii.

The risk management plan is required to be renewed every five years. The risk management plan was last submitted by PGV on 1/4/2013 to EPA Region 9. PGV uses one chemical in sufficient quantities to be regulated under the EPA's Risk Management Program rule. This is n-pentane, a regulated flammable substance. Pentane is used as a working fluid in the power generation process. Other materials in the PGV facility are not regulated under the risk management program because the quantities present are below the thresholds for regulation or are in very low concentrations (i.e., below 1%). These include geothermal well fluids that contain H_2S.

Note that 40 CFR §68.115(b) states: For the purposes of determining whether more than a threshold quantity of a regulated substance is present at the stationary source, the following exemptions apply: (1) *Concentrations of a regulated toxic substance in a mixture.* If a regulated substance is present in a mixture and the concentration of the substance is below one percent by weight of the mixture, the amount of the substance in the mixture need not be considered when determining whether more than a threshold quantity is present at the stationary source.

Currently, PGV does not exceed the threshold quantity for H_2S (10,000 lbs) present at the facility (which does not include the geothermal reservoir) and the concentration of H_2S is less than 1%. PGV is, however, subject to the General Duty Clause for any and all quantities of H_2S at its facility.

10. *Comment:*

Several commenters stated the following concerning Hawaii Administrative Rules (HAR) §11-60.1-11 through 14 and §11-60.1-68:

a. The draft NSP does not comply with the monitoring requirements of HAR Title 11, Chapter 60.1-11 through 14 and 68. These requirements include source sampling (60.1-11 and 60.1-68), air quality modeling for estimating windborne concentrations of toxic gases (60.1-12), meeting minimum monitoring requirements (60.1-13), and public access to ambient air monitoring and emissions data (60.1-14).
b. The draft NSP is in error with regards to the confidential treatment of records. HAR Section 11-60.1-14 allows PGV to request confidential treatment of secret or methods of manufacture records. Records of hazardous materials stored on site and toxins released into the environment cannot be treated as confidential.

Response:

a. The DOH-CAB cannot properly respond to this comment since the commenter does not specify, explain, or provide examples on how the draft NSP does not comply with HAR §11-60.1-11 through 14 and §11-60.1-68 since these requirements are very extensive.
b. HAR §11-60.1-14(b) allows the permittee to request confidential treatment of specific information, including information concerning secret processes or methods of manufacture, by submitting a written request to the Director at the time of submission, and clearly identifying the specific information that is to be accorded confidential treatment. This does not mean that the DOH-CAB will grant confidential treatment to the records. The permittee must prove, via HAR §11-60.1-14(b), that the records/information, in fact, qualifies to be treated as confidential.

   The comment is addressing the inventory and records involving chemicals stored on the PGV site. These chemical inventories and records are not part of the NSP. PGV's NSP is administered by the DOH-CAB. The inventory and record requirements for chemicals stored on-site is administered under Title III of the Superfund Amendments and Reauthorization Act (SARA), also known as EPCRA or the Community Right-to-Know regulation. The EPCRA is not an applicable requirement under the DOH-CAB noncovered source permitting process, and the DOH-CAB does not have anything to do with implementing or administering EPCRA's requirements.

In 1993, the State of Hawaii enacted HEPCRA, which is modeled after federal EPCRA. To implement HEPCRA requirements, regulations provide for the formation of:

- The Hawaii State Emergency Response Commission (HSERC). The HSERC is responsible for the implementation of HEPCRA requirements for the State. The HSERC is housed within the DOH-HEER Office for administrative purposes.
- Local Emergency Planning Committees (LEPC). The LEPC is made up of emergency management agencies, responders, industry, and the public. They work to understand chemical hazards in the community, develop emergency plans in case of accidental release, and look for ways to prevent chemical accidents. There are currently four LEPCs in Hawaii, one to represent each County.

It is the DOH-HEER Office via HSERC and the County LEPCs that administers and implements the HEPCRA chemical inventory requirements. The DOH-HEER Office, which is a separate branch from the DOH-CAB, receives HEPCRA reports and manages HEPCRA data on behalf of the HSERC. The DOH-HEER Office also provides technical and regulatory assistance to businesses, local emergency planning committees and the public.

Under HEPCRA Tier II reporting, PGV's chemical report has included diesel fuel, pentane, sodium hydroxide, and sulfuric acid. This information is available to the public. EPCRA section 322 allows facilities to file trade secrets in their reports under EPCRA sections 303, 311, 312, and 313.

11. *Comment:*

One commenter stated that the Department should use more restrictive permit conditions in the draft NSP per HAR §11-60.1-5.

Response:

The DOH-CAB has used more restrictive permit conditions per HAR §11-60.1-5 in PGV's draft NSP in many instances. For example, the draft NSP has in addition to Hawaii's H_2S ambient standard of 25 ppb on a 1-hr average, a H_2S limit of 10 ppb on a 24-hr rolling average.

12. *Comment:*

One commenter stated that the Department of Health has five H_2S monitors, and unless I've never been informed, they have never been used, they have never been trained. The people in the community were given them by the EPA, and we had to struggle to get those, but they're sitting there.

Response:

The DOH-CAB has frequently used handheld H_2S monitors. To the DOH-CAB's knowledge, the Hawaii County CDA has loaned one handheld H_2S monitor to the Puna Pono Alliance to measure H_2S concentrations.

13. *Comment:*

One commenter stated that there should be more than one portable H_2S abatement systems in the event there is a malfunction or more than one is needed.

Response:

The draft NSP requires PGV to have two portable H_2S abatement systems on-site, which they presently have.

14. *Comment:*

Referencing Attachment IIA, Special Condition No. C.6 and Attachment IIB, Special Condition No. C.10 in the draft NSP, one commenter stated that the H_2S leak inspection be performed a little closer to the source than one meter, like maybe a couple of millimeters away.

Response:

The requirements in the draft NSP regarding the H_2S leak inspection are in accordance with OSHA's guidelines.

15. *Comment:*

One commenter asked for the definition of "kill the well".

Response:

A well kill is the operation of placing a column of heavy fluid into a well bore in order to prevent the flow of reservoir fluids without the need for pressure control equipment at the surface. It works on the principle that the hydrostatic head of the "kill fluid" or "kill mud" will be enough to suppress the pressure of the formation fluids.

16. *Comment:*

One commenter stated that the draft NSP should require a H_2S abatement system during the testing noncondensable gases.

Response:

For the testing of the noncondensable gases, samples are taken from the system which do not require the use of a H_2S abatement system since the concentration of H_2S entrained in the noncondensable gases is very low.

17. *Comment:*

Several commenters stated that the H_2S ambient standard (25 ppb on a 1-hour average) in the draft NSP is not sufficient to determine health impacts and should not be used or have requested stricter permit requirements for measuring H_2S emissions to account for short term exposure to high H_2S concentrations, i.e. "spikes", versus having H_2S concentrations averaged over a one-hour period.

Response:

Prior to adopting and pursuant to the required rulemaking procedures found in Chapter 91, HRS, the H_2S ambient air quality standard of 25 ppb on a 1-hour average, the DOH thoroughly examined scientific literatures and data on the health effects associated with H_2S, and considered and addressed all comments raised during the rulemaking process. The 25 ppb H_2S standard was adopted to ensure the protection of public health and to minimize odor nuisances. It was derived in the early 1990s using standard risk assessment methods based on experimental animal toxicology studies. Safety and uncertainty factors were used to calculate the standard to safeguard the general population. It is several orders of magnitude below occupational health standards and emergency response guidelines. As a matter of comparison, the Agency for Toxic Substances and Disease Registry has an acute minimal risk level of 70 ppb to protect people against adverse respiratory health effects.

18. *Comment:*

One commenter stated that the new NSP should include the recommendations to improve the monitoring and public notification emergency response systems that is from the final report of The Geothermal Public Health Assessment Study Group by Peter S. Adler, Ph.D., as they relate to airborne particulates and other pollutants, and ensure that PGV is required to take corrective action.

Response:

The recommendations regarding improvements to the monitoring and public notification emergency response systems from the final report of The Geothermal Public Health Assessment Study Group were recommendations to the County of Hawaii as part of a health study from geothermal operations in the County of Hawaii. These comments regarding H_2S monitoring and public notification/emergency response have been previously addressed in Sections III and V of this document, specifically Section III, Item Nos. 1, 2, 6, 7, 8, 9, and 17.

IV. RESPONSE TO OUT OF SCOPE COMMENTS

1. *Comment:*

   Several commenters stated that PGV should not be allowed to operate near a residential area.

   Response:

   The DOH-CAB has no authority to make a decision about whether PGV should be allowed to be sited on land that allows it to operate near a residential area or not. The DOH-CAB does not have any authority or discretion on zoning or land use issues, only on the air permitting process. Zoning and/or land issues are under the authority of the County of Hawaii. The DOH-CAB air permitting process only provides the means to assess a facility's potential emissions and its impact on the ambient air. The air permit review determines if a facility will operate in compliance with federal and state air regulations including the health-based State and National Ambient Air Quality Standards. The operating conditions of the air permit are written based on the review of the facility and are the means to regulate a stationary source of air pollution through operating, monitoring, recordkeeping, and reporting requirements.

2. *Comment:*

   Several commenters stated that Department should establish a community board to review monitoring and regulatory issues. Members to include the community, PGV, DOH.

   Response:

   The DOH-CAB has no authority, on its own, to establish a community board to review monitoring and regulatory issues. But there are already such community boards. First there is the Hawaii State Emergency Response Commission (HSERC), and second there are the Local Emergency Planning Commissions (LEPC).

   Title III of the Superfund Amendments and Reauthorization Act (SARA) is also known as the Emergency Planning and Community Right-to-Know Act (EPCRA) or the Community Right-to-Know regulation. In 1993, the State of Hawaii enacted HEPCRA, which is modeled after federal EPCRA. To implement HEPCRA requirements, regulations provide for the formation of:

   - The Hawaii State Emergency Response Commission (HSERC). The HSERC is responsible for the implementation of HEPCRA requirements for the State. The HSERC is housed within the DOH-HEER Office for administrative purposes.

- Local Emergency Planning Committees (LEPC). The LEPC is made up of emergency management agencies, responders, industry, and the public. They work to understand chemical hazards in the community, develop emergency plans in case of accidental release, and look for ways to prevent chemical accidents. There are currently four LEPCs in Hawaii, one to represent each County. There is a LEPC for Hawaii County, and a number of Puna organizations are members.

The DOH-HEER Office, which is a separate branch of the DOH-CAB, receives HEPCRA reports and manages HEPCRA data on behalf of the HSERC. The DOH-HEER Office also provides technical and regulatory assistance to businesses, local emergency planning committees and the public.

3. *Comment:*

Several commenters stated that the Department should be working with other agencies to regulate PGV.

Response:

The DOH-CAB does work with and assists other government agencies regulating PGV, but note that each government agency is delegated specific laws and regulations to uphold. The DOH-HEER Office is part of the LEPC and is involved in HEPCRA.

4. *Comment:*

Puna Pono Alliance believes that DOH should work with the County of Hawaii to establish adequate toxin sampling to allow effective emergency response to upsets at PGV. Also, PPA believes DOH should work with the County to establish a warning system that allows effective community response.

Response:

Hawaii County Civil Defense Agency (CDA), is mainly responsible for emergency response planning including establishing a warning system. The DOH-CAB is not aware of any request by the Hawaii County CDA for assistance in toxic sampling.

V. RESPONSE TO CONTESTED CASE HEARING COMMENTS

1. *Comment:*

DOH should regulate PGV based on the amount of hydrogen sulfide (H_2S) actually released by PGV, not on readings self-reported by PGV's samplers.

Response:

The response to this comment can be found in Section III, Item No. 7 of this document.

2. *Comment:*

PGV's H_2S samplers at its facility boundary sample air at 15 feet – too high to detect ground hugging H_2S released during maintenance and too low to detect H_2S in steam that rises over the samplers before descending into the community.

Response:

The response to this comment can be found in Section III, Item No. 1 of this document.

3. *Comment:*

PGV has only three H_2S samplers and the DOH Clean Air Branch has admitted that wind direction could cause those three samplers to fail to detect a release.

Response:

The response to this comment can be found in Section III, Item No. 2 of this document.

4. *Comment:*

The H_2S samplers are not adequate to allow County First Responders to make reasonable decisions on evacuation and direction of evacuation.

Response:

The response to this comment can be found in Section III, Item Nos. 2 and 7 of this document.

5. *Comment:*

- The permit does not require sampling for deposits of heavy metals, caustic soda or of other potentially dangerous chemicals.
- As a minimum, the following should be sampled following an upset:

  Hydrogen sulfide
  Metals, particularly heavy metals
  Silica
  Caustic soda

Response:

The response to this comment can be found in Section III, Item No. 6 of this document.

6. *Comment:*

The draft NSP does not comply with monitoring requirements of Hawaii Administrative Rules (HAR) Title 11, Chapter 60.1-11 through 14 and 68. These requirements

include source sampling (60.1-11 and 60.1-68), air quality modeling for estimating wind-borne concentrations of toxic gases (60.1-12), minimum monitoring requirements (60.1-13), and public access to ambient air monitoring and emissions data (60.1-14).

Response:

The response to this comment can be found in Section III, Item No. 10a of this document.

7. *Comment:*

   a. The revised proposed draft NSP Attachment 1, page 3, #17 states "The permittee may request confidential treatment of any records in accordance with HAR, Section 11-60.1-14." This is an erroneous interpretation of the HAR, which allows only secret processes or methods of manufacture to be treated as confidential business information (CBI).

   b. The permittee has, over many years, used an overly broad interpretation in the NSP to withhold from the public information about toxic releases and chemicals stored on site and their disposition.

Response:

   a. HAR §11-60.1-14(b) allows the permittee to request confidential treatment of specific information, including information concerning secret processes or methods of manufacture, by submitting a written request to the director at the time of submission, and clearly identifying the specific information that is to be accorded confidential treatment. This does not mean that the DOH-CAB will grant confidential treatment to the records. The permittee must prove, via HAR §11-60.1-14(b), that the records/information, in fact, qualifies to be treated as confidential.
   b. The comment is addressing the inventory and records involving chemicals stored on the PGV site. These chemical inventories and records are not part of the NSP. PGV's NSP is administered by the DOH-CAB. The inventory and record requirements for chemicals stored on-site is administered under Title III of the Superfund Amendments and Reauthorization Act (SARA), also known as EPCRA or the Community Right-to-Know regulation. The EPCRA is not an applicable requirement under the DOH-CAB noncovered source permitting process, and the DOH-CAB does not have anything to do with implementing or administering EPCRA's requirements.

      In 1993, the State of Hawaii enacted HEPCRA, which is modeled after federal EPCRA. To implement HEPCRA requirements, regulations provide for the formation of:

- The Hawaii State Emergency Response Commission (HSERC). The HSERC is responsible for the implementation of HEPCRA requirements for the State. The HSERC is housed within the DOH-HEER Office for administrative purposes.
- Local Emergency Planning Committees (LEPC). The LEPC is made up of emergency management agencies, responders, industry, and the public. They work to understand chemical hazards in the community, develop emergency plans in case of accidental release, and look for ways to prevent chemical accidents. There are currently four LEPCs in Hawaii, one to represent each County.

It is the DOH-HEER Office via HSERC and the County LEPCs that administers and implements the HEPCRA chemical inventory requirements. The DOH-HEER Office, which is a separate branch from the DOH-CAB, receives HEPCRA reports and manages HEPCRA data on behalf of the HSERC. The DOH-HEER Office also provides technical and regulatory assistance to businesses, local emergency planning committees and the public.

Under HEPCRA Tier II reporting, PGV's chemical report has included diesel fuel, pentane, sodium hydroxide, and sulfuric acid. This information is available to the public. EPCRA section 322 allows facilities to file trade secrets in their reports under EPCRA sections 303, 311, 312, and 313.

8. *Comment:*

The proposed draft NSP fails to address the Hazardous Chemical Reporting Community Right To Know Act (40 CFR Part 370), which requires development of state and local emergency response plans. Submitting a risk management plan to the EPA Region 9 office in San Francisco does not satisfy this requirement. Because of Hawaii County's isolation from Federal and State emergency response resources, County of Hawaii Civil Defense (CD) provides the first line response when local emergencies occur. As a (perhaps unintended) consequence of Act 97, passed by the Hawaii Legislature in 2012, Hawaii County's authority to impose reporting requirements on PGV is severely limited. PGV officials have verbally disclosed that they have various near-source sensors designed to alert plant officials when certain (undisclosed) threshold levels of hydrogen sulfide are detected. Yet there is no NSP requirement to report this information to CD or other interested parties. Providing such toxic emissions information to CD is crucial to the health and safety of those living in communities surrounding PGV. A requirement to provide toxic gas release information to CD and warning through e-mail, phone, and social media to the surrounding communities must be included in the NSP. Further, continuous source emissions monitoring, to include third party equipment operation, maintenance, quality control checks, and quarterly system performance reports, must be included in the NSP.

Response:

The response to this comment can be found in Section III, Item Nos. 8 and 9 of this document.

9. *Comment:*

Many of the more serious releases (abated or otherwise) occur during standard conditions covered in Attachment I. A five pound per hour equivalent flow rate (calculated per minute at 0.083 lbs per minute) is a reasonable reporting threshold for any release. It is achievable with existing monitoring technology and should serve as a reporting threshold requirement for all PGV operations. Additional reporting requirements must include source emissions alarms (with a threshold not to exceed 1 part per million) and any discharge through the emergency steam release facility. Prompt reporting of emission rates to CD is necessary because these emissions rates will serve as input to an atmospheric dispersion model that provides estimates of the quantities of toxic gases crossing the PGV perimeter.

Response:

In order to calculate a H_2S release in lb/hr, the steam flow rate in lb/hr, the concentration of H_2S in the steam, and the abatement efficiency must be known. In many instances, the steam flow rate and concentration of H_2S are unknown. For example, if a malfunction occurred somewhere in the piping or valves in the geothermal plant, the steam flow rate and the H_2S concentration might be unknown and comparison with the 5 lb/hr H_2S threshold would not be possible. Attachment IIA, Special Conditions Nos. C.7 and D.7 of the draft NSP presently regulates releases over 15 minutes in duration from the emergency steam release facility. The draft NSP includes a H_2S limit of 10 ppm at a distance of 1 meter for leak inspections. This issue is best addressed by the Hawaii County CDA, since a reporting requirement for any H_2S release of 1 ppm or greater would result in an excessive amount of alarms reportable to Hawaii County CDA for possible insignificant amounts of H_2S. Also see Section III, Item No. 7 of this document.