Appendix A
Responses to Comments

Site History is Incomplete

The RFI/RI does not adequately identify hazardous materials brought to the site by either chemical class or volume, nor does it provide volumes for wastes generated at the site. In order to evaluate the threats posed to the Colorado River, the RFI/RI needs to include this basic historical information.

What the RFI/RI and supporting documents do describe is the extensive discharge of hazardous wastes on and near the facility from the 1950s through the 1970s, prior to the existence of environmental regulations requiring appropriate management and disposal of such wastes. Much of the waste discharged at or near the facility evidently was either released in ravines and depressions such as Bat Cave Wash, East Ravine, and Debris Ravine, or was injected into an unregulated well. However, the types and volumes of the wastes discharged to most of these areas are not characterized in the RFI/RI. Discharges also occurred at the site in areas that are neither identified nor characterized in either the RCRA Facility Assessment (RFA) completed in 1986, or the series of draft RFI reports to date. Such areas include a septic disposal system that reportedly received potentially hazardous wastes generated in an onsite laboratory (previously unidentified), and from floor drains located near areas where hazardous materials were used at the facility.

S2-1

To develop a basic understanding of past operational practices at the Topock site, a number of additional sources should be incorporated, including PG&E company records, more than a single former-employee interview, and records from other PG&E gas compressor stations.

Environmental Setting Requires Additional Characterization

PG&E has made improvements in understanding the local geology as compared to earlier drafts of the RFI. However, the current RFI/RI relies on outdated geologic information and should be updated to include more current information related to river protection. In particular, recently completed floodplain wells have identified highly transmissive geologic deposits located adjacent to the Colorado River that contain a groundwater plume with high concentrations of Cr6. Recognition of these contaminant pathways is vital to assessing migration of contamination to the river.

S2-2

The bedrock geology that received wastes discharged through injection well PG&E-8 is also inadequately characterized. Geologic reports of the site bedrock have described a rock that is highly fractured and sheared due to tectonic movement along ancient faults. It is widely recognized in the geologic community that faults, fractures and shears can be efficient groundwater conductors that provide a means for contaminant migration. Therefore, additional investigation of the bedrock characteristics is warranted to more fully understand the extent of contamination that occurred from the unregulated discharges into well PG&E-8.

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Page 2

Response to Comment S2-1(RS_101805_4)

DTSC RESPONSE: Comment Noted. PG&E is not required to address this comment at this time. The site history has been extensively researched by PG&E and a significant amount of information relating to facility operations has been compiled and documented in the draft RFI/RI Report. The compiled information provides a detailed account of chemical usage and waste disposal practices from the beginning of facility operation in 1951 through the present time. Sources used for the research include PG&E company records (for Topock and other compressor stations), interviews with current employees, reviews of information gained from interviews with former employees, and regulatory agency (DTSC, RWQCB, County, EPA, etc.) files.

With any project that dates back to 1951 it can be anticipated that some specific details and information may have been lost. However, the historic information collected by PG&E to date provides a reasonable and sufficient effort and understanding relative to general chemical category usage and waste disposal practices at the PG&E Topock Compressor Station for the purposes of identifying potentially affected areas and contaminants of concern, and the development of conceptual site models. Continued additional historic research would be repetitive and may introduce unnecessary delays into the RFI/RI process, and it most likely would produce little if

any additional significant information. It is also likely that any additional information (e.g., identification of chemical class and volume) would not significantly alter the overall basic understanding of site history or significantly aid in the identification and assessment of potentially contaminated areas. In addition, any uncertainties with respect to the types of potential contaminants will not significantly alter the overall identification or assessment of Areas Of Concern (AOCs).

PG&E has made a best faith effort to provide a study that meets the standard level of care prescribed for the development of site history and the documentation of chemical usage and waste management practices associated with Resource Conservation Recovery Act (RCRA) RCRA Facility Assessment (RFA)/RCRA Facility Investigation RFI and CERCLA Preliminary Assessment (PA)/Site Assessment (SI)/Remedial Investigation (RI) programs. Additional historical documentation is not warranted at this time and would not materially assist or improve the Site History section of the draft RFI/RI.

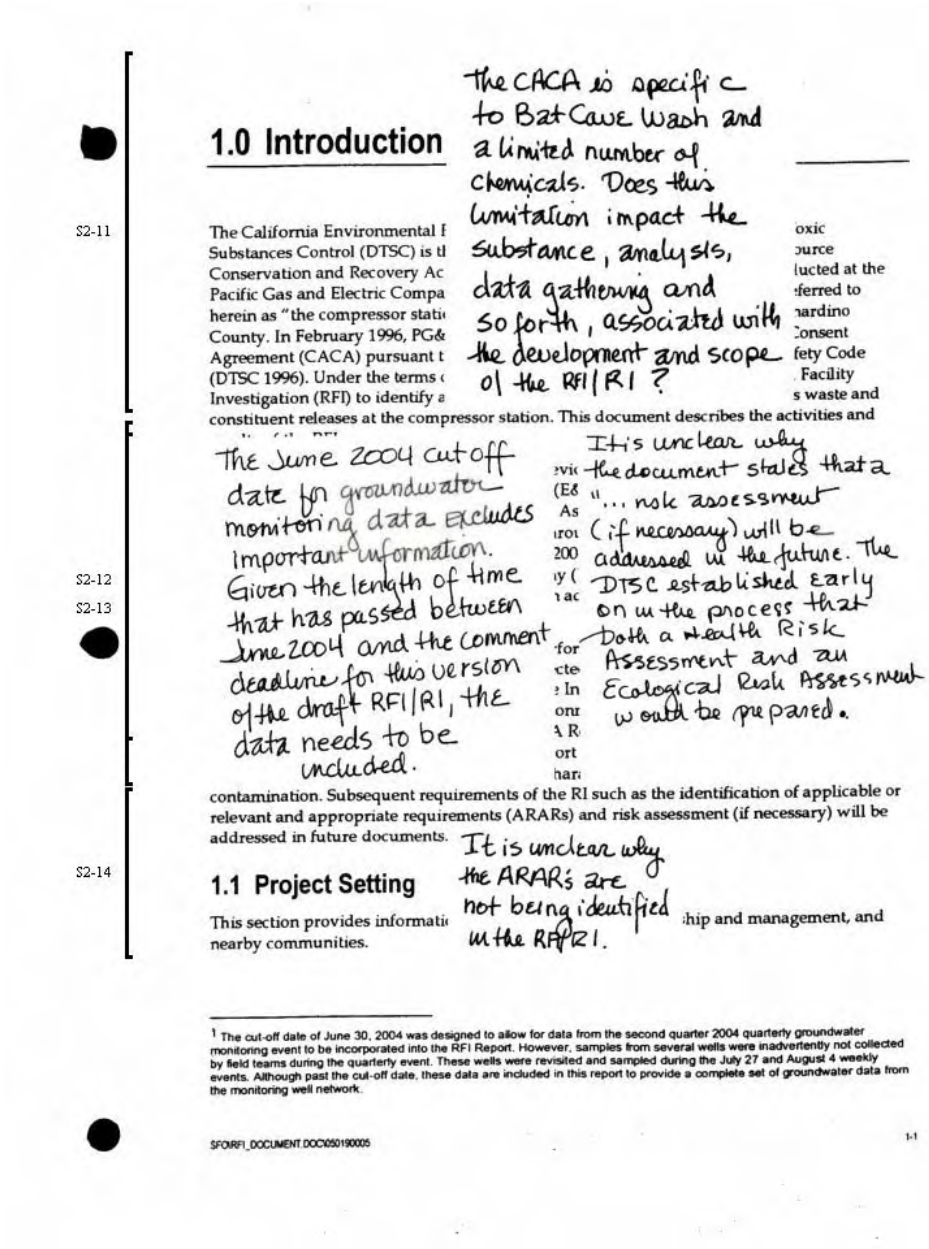
PG&E shall complete the RCRA RFA questionnaire and sign the certification provided in the DTSC letter dated January 6, 2006. A copy of the completed questionnaire and executed certification shall be placed in an Appendix of the Revised Site History Section.

PG&E RESPONSE: PG&E reviewed the few historical files not available at the time of the 2005 RFI and conducted additional interviews with former employees. Only limited additional information was identified. This information is reflected in Sections 3.0 through 5.0. Detailed information regarding specific chemicals used and specific quantities and disposal locations for each potential waste stream is not available. A new table has been included in Section 3.0 that summarizes available historic information regarding volumes of chemicals purchased and/or stored.

DTSC RESPONSE to Comment S2-2

Comment Noted. PG&E is not required to address this comment at this time. DTSC has deferred response to this comment to a future date since the comment does not relate to the site history section of the RFI. In accordance with DTSC's instructions and direction, PG&E was directed to establish an initial data cut-off-date of June 2004 for the RFI. Otherwise no defined data end point could be established since data continues to be collected on a frequent and regular basis. DTSC anticipates establishing a new RFI data cut-off-date in April 2006 for groundwater, surface water, pore water and river sediment data to be included into Volume 2 and March 30, 2007 for the soil data to be included into Volume 3. These dates will be identified in future written correspondence from DTSC to PG&E.

PG&E RESPONSE: No response required.



1.0 Introduction

The CACA is specific to Bat Cave Wash and a limited number of chemicals. Does this limitation impact the substance, analysis, data gathering and so forth, associated with the development and scope of the RFI/RI?

S2-11

The California Environmental P
Substances Control (DTSC) is th
Conservation and Recovery Ac
Pacific Gas and Electric Compa
herein as "the compressor stati
County. In February 1996, PG&
Agreement (CACA) pursuant t
(DTSC 1996). Under the terms
Investigation (RFI) to identify a
constituent releases at the compressor station. This document describes the activities and

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Consent
fety Code
Facility
s waste and

The June 2004 cut off date for groundwater monitoring data Excludes important information. Given the length of time that has passed between June 2004 and the comment deadline for this version of the draft RFI/RI, the data needs to be included.

S2-12
S2-13

It is unclear why the document states that a "... risk assessment (if necessary) will be addressed in the future. The DTSC established early on in the process that both a Health Risk Assessment and an Ecological Risk Assessment would be prepared.

contamination. Subsequent requirements of the RI such as the identification of applicable or relevant and appropriate requirements (ARARs) and risk assessment (if necessary) will be addressed in future documents.

S2-14

It is unclear why the ARAR's are not being identified in the RFI/RI.

1.1 Project Setting

This section provides informati
nearby communities.

hip and management, and

[1] The cut-off date of June 30, 2004 was designed to allow for data from the second quarter 2004 quarterly groundwater monitoring event to be incorporated into the RFI Report. However, samples from several wells were inadvertently not collected by field teams during the quarterly event. These wells were revisited and sampled during the July 27 and August 4 weekly events. Although past the cut-off date, these data are included in this report to provide a complete set of groundwater data from the monitoring well network.

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Response to Comment S2-11(RS_110105_51)

Comment noted. PG&E is not required to address this comment at this time. The RFI/RI Report provides a reasonable level of information on the entire facility and identified chemicals of concern in addition too those listed in the Corrective Action Consent Agreement (CACA).

PG&E RESPONSE: No response required.

Response to Comment S2-12(RS_110105_52)

DTSC will defer a response to this comment to a future date. PG&E is not required to address this comment at this time. Response to comment is deferred to Volumes 2 and 3. For additional information see response to comment S2-1.

PG&E RESPONSE: No response required.

Response to Comment S2-13(RS_110105_54)

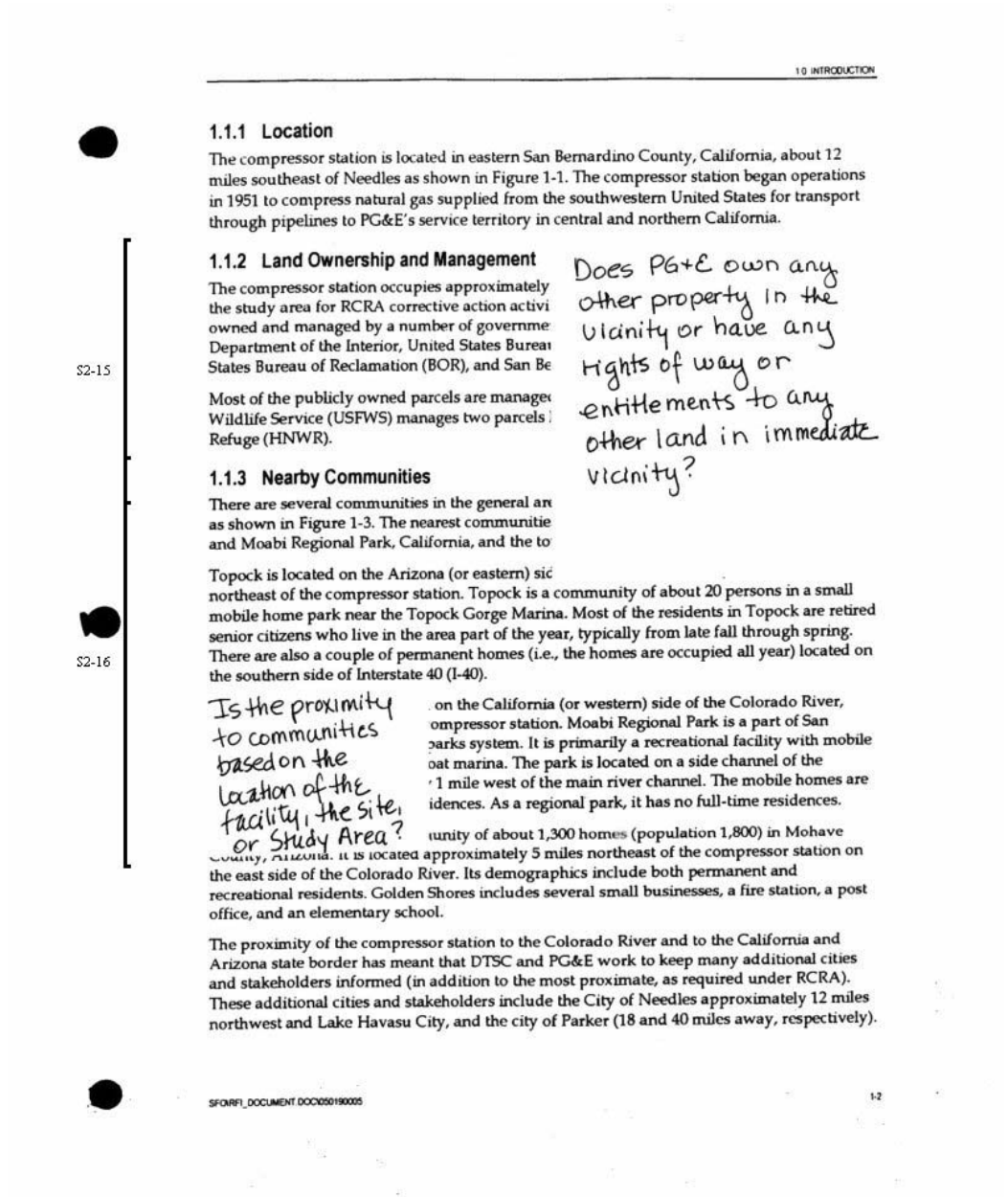
PG&E shall revise the text to indicate that a Human and Ecological Risk assessment will be prepared as was previous required by DTSC.

PG&E RESPONSE: The following text has been added "A human health and ecological risk assessment will be prepared as a stand-alone document following completion of the soil investigation program."

Response to Comment S2-14(RS_110105_55)

Comment noted. PG&E is not required to address this comment at this time. Applicable Relevant and Appropriate Requirements (ARARs) will be identified in a separate document that will be prepared by DTSC.

PG&E RESPONSE: No response required.



1.0 INTRODUCTION

1.1.1 Location

The compressor station is located in eastern San Bernardino County, California, about 12 miles southeast of Needles as shown in Figure 1-1. The compressor station began operations in 1951 to compress natural gas supplied from the southwestern United States for transport through pipelines to PG&E's service territory in central and northern California.

1.1.2 Land Ownership and Management

The compressor station occupies approximately
the study area for RCRA corrective action activi
owned and managed by a number of governme
Department of the Interior, United States Bureau
States Bureau of Reclamation (BOR), and San Be

Most of the publicly owned parcels are manage
Wildlife Service (USFWS) manages two parcels
Refuge (HNWR).

Does PG+E own any other property in the vicinity or have any rights of way or entitlements to any other land in immediate vicinity?

1.1.3 Nearby Communities

There are several communities in the general ar
as shown in Figure 1-3. The nearest communitie
and Moabi Regional Park, California, and the to

Topock is located on the Arizona (or eastern) sid
northeast of the compressor station. Topock is a community of about 20 persons in a small mobile home park near the Topock Gorge Marina. Most of the residents in Topock are retired senior citizens who live in the area part of the year, typically from late fall through spring. There are also a couple of permanent homes (i.e., the homes are occupied all year) located on the southern side of Interstate 40 (I-40).

Is the proximity to communities based on the location of the facility, the site, or Study Area?

on the California (or western) side of the Colorado River,
ompressor station. Moabi Regional Park is a part of San
parks system. It is primarily a recreational facility with mobile
oat marina. The park is located on a side channel of the
1 mile west of the main river channel. The mobile homes are
idences. As a regional park, it has no full-time residences.

tunity of about 1,300 homes (population 1,800) in Mohave
County, Arizona. It is located approximately 5 miles northeast of the compressor station on the east side of the Colorado River. Its demographics include both permanent and recreational residents. Golden Shores includes several small businesses, a fire station, a post office, and an elementary school.

The proximity of the compressor station to the Colorado River and to the California and Arizona state border has meant that DTSC and PG&E work to keep many additional cities and stakeholders informed (in addition to the most proximate, as required under RCRA). These additional cities and stakeholders include the City of Needles approximately 12 miles northwest and Lake Havasu City, and the city of Parker (18 and 40 miles away, respectively).

S2-15

S2-16

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Response to Comment S2-15(RS_110105_56)

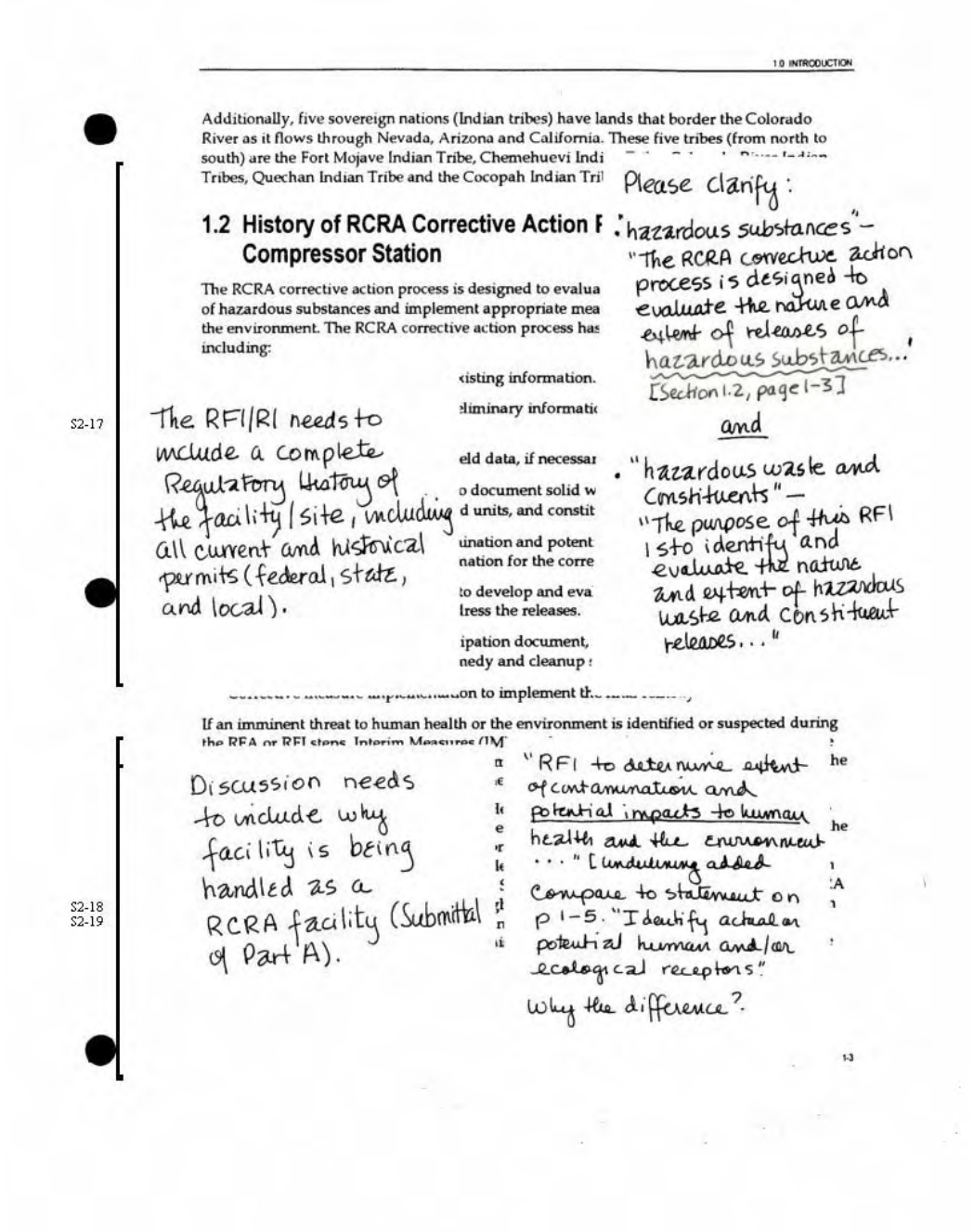
DTSC RESPONSE: PG&E shall include any information on other properties in the immediate vicinity that are owned or leased to PG&E (if any exist).

PG&E RESPONSE: The additional information has been included as requested.

Response to Comment S2-16(RS_110105_57)

DTSC RESPONSE: PG&E shall provide additional clarification in the text that that the values are based on distance from the facility.

PG&E RESPONSE: The clarification has been made as requested.



1.0 INTRODUCTION

Additionally, five sovereign nations (Indian tribes) have lands that border the Colorado River as it flows through Nevada, Arizona and California. These five tribes (from north to south) are the Fort Mojave Indian Tribe, Chemehuevi Indi… Tribes, Quechan Indian Tribe and the Cocopah Indian Tri…

1.2 History of RCRA Corrective Action F… Compressor Station

The RCRA corrective action process is designed to evalua… of hazardous substances and implement appropriate mea… the environment. The RCRA corrective action process has… including:

- …isting information.
- …liminary informati…
- …eld data, if necessar…
- …o document solid w… d units, and constit…
- …ination and potent… nation for the corre…
- …to develop and eva… tress the releases.
- …ipation document, nedy and cleanup …

…on to implement th…

If an imminent threat to human health or the environment is identified or suspected during the RFA or RFI steps, Interim Measures (IM…

1-3

Please clarify:

• "hazardous substances" – "The RCRA corrective action process is designed to evaluate the nature and extent of releases of hazardous substances..." [Section 1.2, page 1-3]

and

• "hazardous waste and constituents" – "The purpose of this RFI is to identify and evaluate the nature and extent of hazardous waste and constituent releases..."

S2-17 The RFI/RI needs to include a complete Regulatory History of the facility/site, including all current and historical permits (federal, state, and local).

"RFI to determine extent of contamination and potential impacts to human health and the environment ..." [underlining added] Compare to statement on p 1-5. "Identify actual or potential human and/or ecological receptors." Why the difference?

S2-18 S2-19 Discussion needs to include why facility is being handled as a RCRA facility (Submittal of Part A).

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Response to Comment S2-17(RS_110105_58)

DTSC RESPONSE: Comment noted. PG&E is not required to address this comment at this time. The report does include a complete regulatory history in Section 3. The level of effort and inclusion of all historic and current permits is not warranted as these permits are not likely to provide any substantive information that is not already identified.

PG&E RESPONSE: No response required.

DTSC RESPONSE: PG&E should provide additional clarification related to the statement "hazardous substances" that this is taken directly from RCRA guidance documents, while the statement regarding "hazardous waste and constituent releases" is taken directly from the CACA.

PG&E RESPONSE: The text in Section 1.2 has been revised and streamlined to clarify the regulatory framework for the project, and the requirements of the RCRA Corrective Program (and CERCLA) are described in Table 1-1.

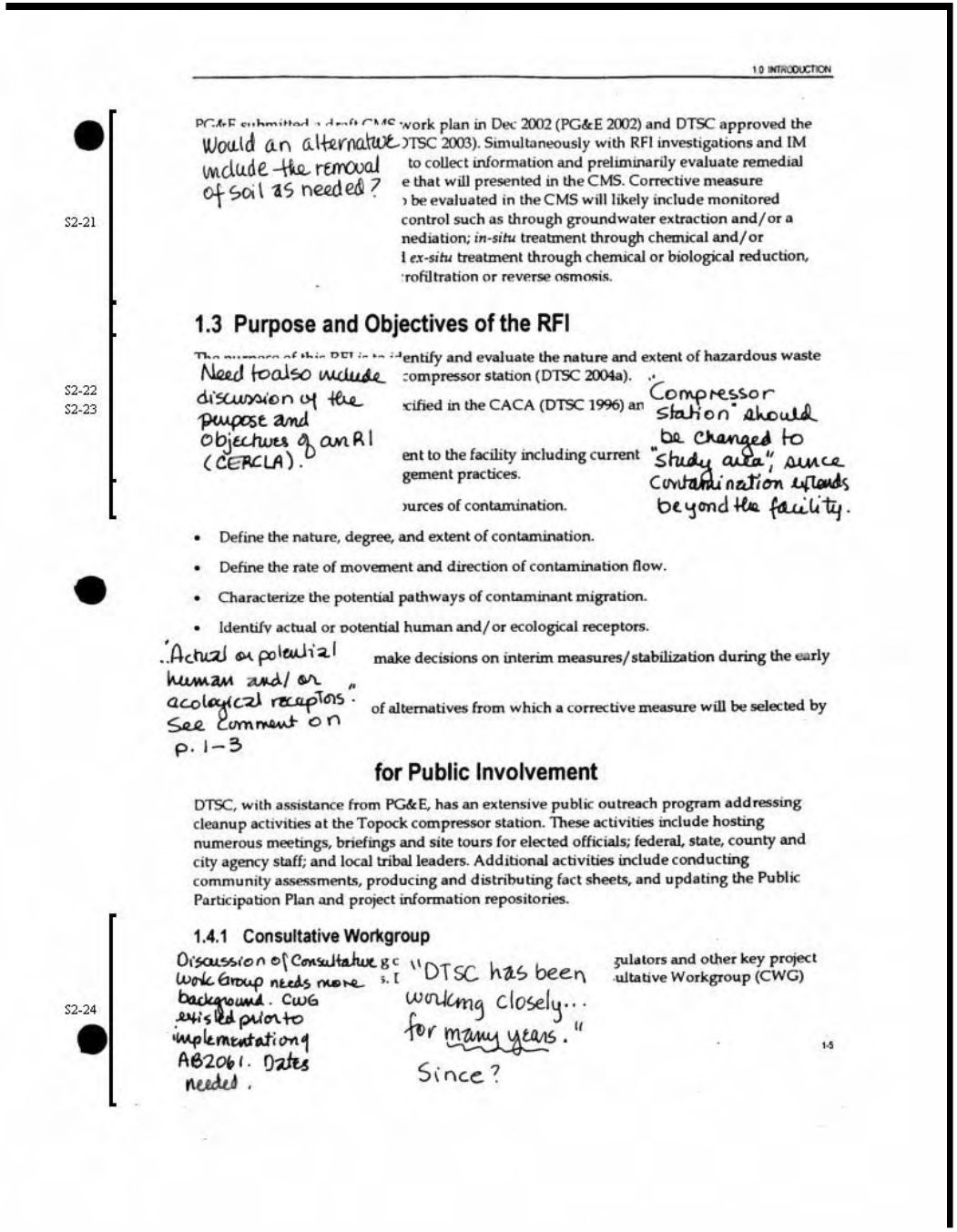
Response to Comment S2-18(RS_110105_59)

DTSC RESPONSE: PG&E shall address this comment by including information on why the facility is being addressed under RCRA.

PG&E RESPONSE: See response to second comment under comment S2-17.

DTSC RESPONSE: PG&E shall address this comment. The text shall be clarified and revised to be consistent.

PG&E RESPONSE: The text in both sections has been streamlined and clarified to refer to the requirements of the CACA.



1.0 INTRODUCTION

PG&E submitted a draft CMS work plan in Dec 2002 (PG&E 2002) and DTSC approved the
Would an alternative include the removal of soil as needed?
DTSC 2003). Simultaneously with RFI investigations and IM
to collect information and preliminarily evaluate remedial
e that will presented in the CMS. Corrective measure
be evaluated in the CMS will likely include monitored
S2-21 control such as through groundwater extraction and/or a
nediation; *in-situ* treatment through chemical and/or
l *ex-situ* treatment through chemical or biological reduction,
rofiltration or reverse osmosis.

1.3 Purpose and Objectives of the RFI

The purpose of this RFI is to identify and evaluate the nature and extent of hazardous waste
S2-22 Need to also include discussion of the purpose and objectives of an RI (CERCLA).
compressor station (DTSC 2004a).
S2-23 cified in the CACA (DTSC 1996) an
"Compressor station" should be changed to "study area", since contamination extends beyond the facility.
ent to the facility including current
gement practices.
ources of contamination.

- Define the nature, degree, and extent of contamination.
- Define the rate of movement and direction of contamination flow.
- Characterize the potential pathways of contaminant migration.
- Identify actual or potential human and/or ecological receptors.

"Actual or potential human and/or ecological receptors." See comment on p. 1-3

make decisions on interim measures/stabilization during the early

of alternatives from which a corrective measure will be selected by

for Public Involvement

DTSC, with assistance from PG&E, has an extensive public outreach program addressing cleanup activities at the Topock compressor station. These activities include hosting numerous meetings, briefings and site tours for elected officials; federal, state, county and city agency staff; and local tribal leaders. Additional activities include conducting community assessments, producing and distributing fact sheets, and updating the Public Participation Plan and project information repositories.

1.4.1 Consultative Workgroup

Discussion of Consultative Work Group needs more background. CWG existed prior to implementation of AB2061. Dates needed.

S2-24 "DTSC has been working closely... for many years." Since?

gulators and other key project
ultative Workgroup (CWG)

1-5

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Response to Comment S2-21(RS_110105_62)

DTSC RESPONSE: Comment Noted. PG&E is not required to address this comment at this time. DTSC assumes that soil removal could and probably will be one likely alternative for evaluation.

PG&E RESPONSE: No response required.

Response to Comment S2-23(RS_110105_64)

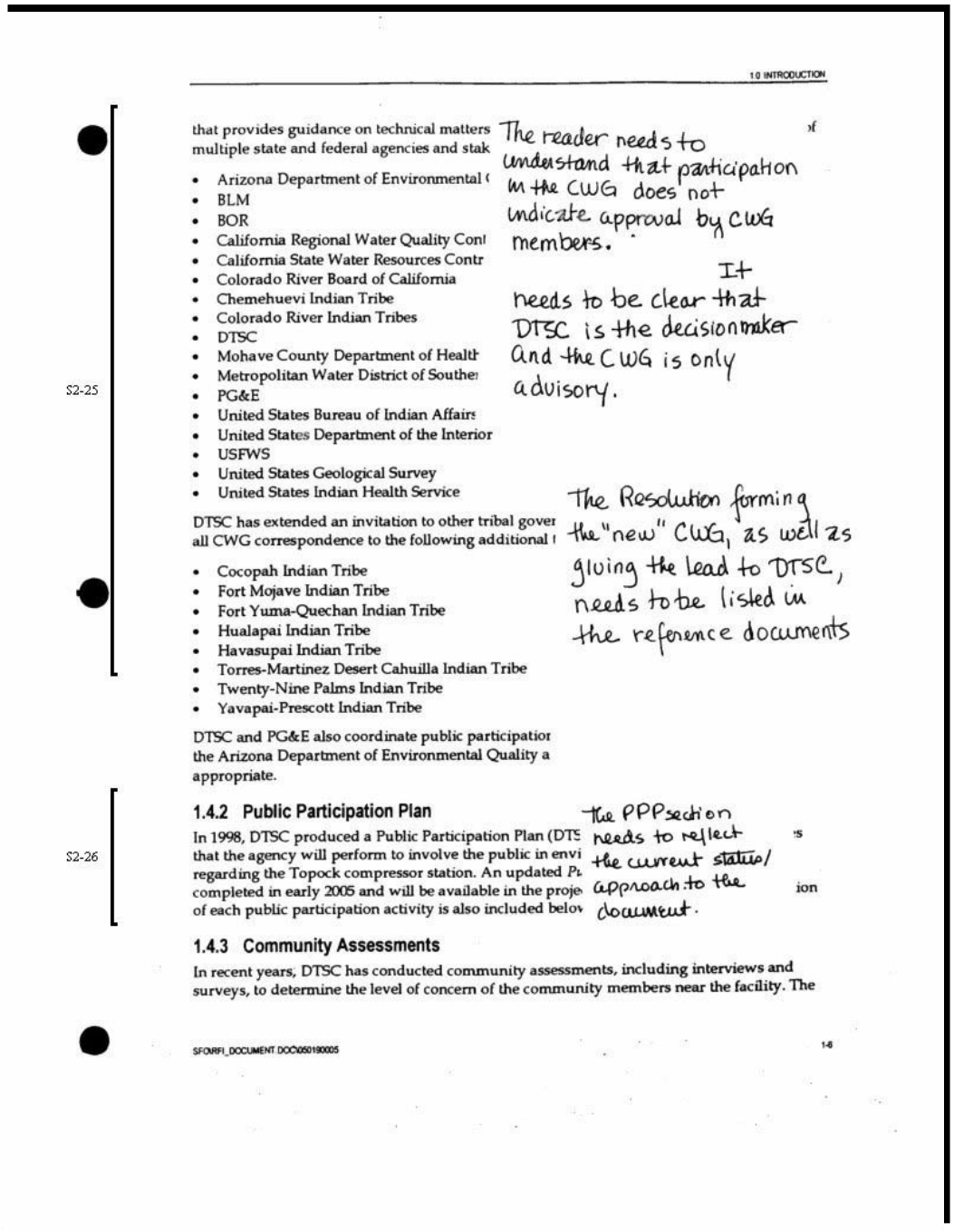
DTSC RESPONSE: PG&E shall address this comment. Please note that the objectives are taken directly from the CACA; however, PG&E shall revise the wording to indicate that an area larger than just the compressor station will be addressed. Reference to the Area of Potential Effect (APE) as determined by BLM should be incorporated with an appropriate reference figure that identifies the APE. Include a discussion of the purpose and definition of the APE.

PG&E RESPONSE: The text has been changed to refer to the Topock Compressor Station site.

Response to Comment S2-24(RS_110105_65)

DTSC RESPONSE: PG&E shall address this comment. Additional information on the CWG shall be provided and the time period shall be better defined.

PG&E RESPONSE: Per direction from DTSC, Section 1.4 has been streamlined, and the reader is referred to the Public Participation Plan for detailed information. This change has not been made.



1.0 INTRODUCTION

that provides guidance on technical matters
multiple state and federal agencies and stak

- Arizona Department of Environmental
- BLM
- BOR
- California Regional Water Quality Cont
- California State Water Resources Contr
- Colorado River Board of California
- Chemehuevi Indian Tribe
- Colorado River Indian Tribes
- DTSC
- Mohave County Department of Health
- Metropolitan Water District of Souther
- PG&E
- United States Bureau of Indian Affairs
- United States Department of the Interior
- USFWS
- United States Geological Survey
- United States Indian Health Service

S2-25

The reader needs to understand that participation in the CWG does not indicate approval by CWG members.

It needs to be clear that DTSC is the decisionmaker and the CWG is only advisory.

DTSC has extended an invitation to other tribal gover
all CWG correspondence to the following additional

- Cocopah Indian Tribe
- Fort Mojave Indian Tribe
- Fort Yuma-Quechan Indian Tribe
- Hualapai Indian Tribe
- Havasupai Indian Tribe
- Torres-Martinez Desert Cahuilla Indian Tribe
- Twenty-Nine Palms Indian Tribe
- Yavapai-Prescott Indian Tribe

The Resolution forming the "new" CWG, as well as giving the lead to DTSC, needs to be listed in the reference documents

DTSC and PG&E also coordinate public participatior
the Arizona Department of Environmental Quality a
appropriate.

1.4.2 Public Participation Plan

S2-26

In 1998, DTSC produced a Public Participation Plan (DTS
that the agency will perform to involve the public in envi
regarding the Topock compressor station. An updated *Pu*
completed in early 2005 and will be available in the proje
of each public participation activity is also included belov

The PPP section needs to reflect the current status/ approach to the document.

1.4.3 Community Assessments

In recent years, DTSC has conducted community assessments, including interviews and surveys, to determine the level of concern of the community members near the facility. The

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Response to Comment S2-25(RS_110105_66)

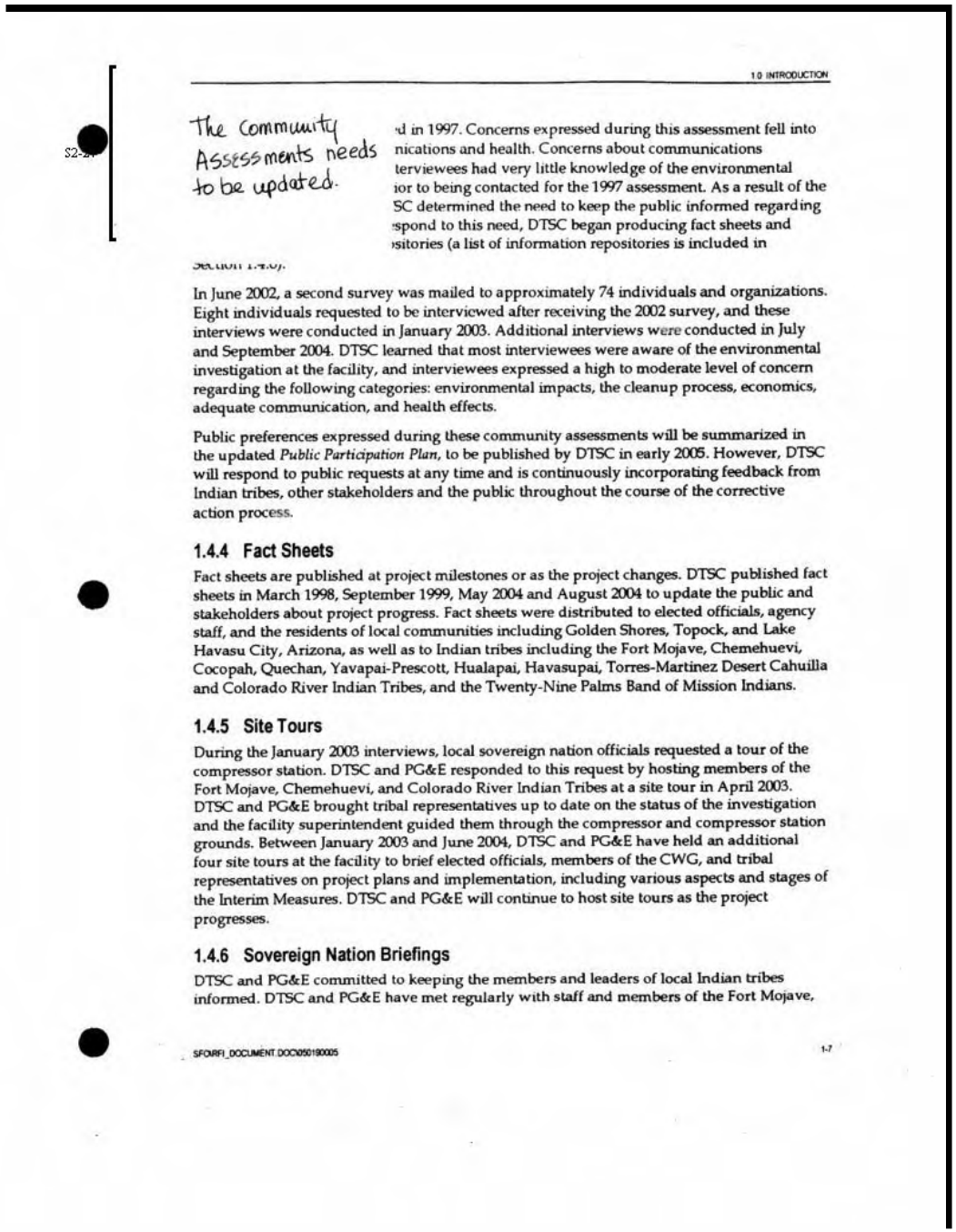
DTSC RESPONSE: PG&E shall address this comment. The text will be revised to state that the CWG has a responsibility to participate and provide meaningful input as an advisory resource to DTSC. DTSC is sole and final decision making authority as the lead regulatory administrating agency.

PG&E RESPONSE: Per direction from DTSC, Section 1.4 has been streamlined, and the reader is referred to the Public Participation Plan for detailed information. The text was clarified to indicate that DTSC is the sole decision-making agency with respect to RCRA and that the CWG is an advisory group.

Response to Comment S2-26(RS_110105_67)

DTSC RESPONSE: PG&E shall address this comment. The section shall be updated as requested.

PG&E RESPONSE: Per direction from DTSC, Section 1.4 has been streamlined, and the reader is referred to the Public Participation Plan for detailed information.



S2-27

The Community Assessments needs to be updated.

d in 1997. Concerns expressed during this assessment fell into nications and health. Concerns about communications terviewees had very little knowledge of the environmental ior to being contacted for the 1997 assessment. As a result of the SC determined the need to keep the public informed regarding spond to this need, DTSC began producing fact sheets and sitories (a list of information repositories is included in Section 1.4.6).

In June 2002, a second survey was mailed to approximately 74 individuals and organizations. Eight individuals requested to be interviewed after receiving the 2002 survey, and these interviews were conducted in January 2003. Additional interviews were conducted in July and September 2004. DTSC learned that most interviewees were aware of the environmental investigation at the facility, and interviewees expressed a high to moderate level of concern regarding the following categories: environmental impacts, the cleanup process, economics, adequate communication, and health effects.

Public preferences expressed during these community assessments will be summarized in the updated *Public Participation Plan*, to be published by DTSC in early 2005. However, DTSC will respond to public requests at any time and is continuously incorporating feedback from Indian tribes, other stakeholders and the public throughout the course of the corrective action process.

1.4.4 Fact Sheets

Fact sheets are published at project milestones or as the project changes. DTSC published fact sheets in March 1998, September 1999, May 2004 and August 2004 to update the public and stakeholders about project progress. Fact sheets were distributed to elected officials, agency staff, and the residents of local communities including Golden Shores, Topock, and Lake Havasu City, Arizona, as well as to Indian tribes including the Fort Mojave, Chemehuevi, Cocopah, Quechan, Yavapai-Prescott, Hualapai, Havasupai, Torres-Martinez Desert Cahuilla and Colorado River Indian Tribes, and the Twenty-Nine Palms Band of Mission Indians.

1.4.5 Site Tours

During the January 2003 interviews, local sovereign nation officials requested a tour of the compressor station. DTSC and PG&E responded to this request by hosting members of the Fort Mojave, Chemehuevi, and Colorado River Indian Tribes at a site tour in April 2003. DTSC and PG&E brought tribal representatives up to date on the status of the investigation and the facility superintendent guided them through the compressor and compressor station grounds. Between January 2003 and June 2004, DTSC and PG&E have held an additional four site tours at the facility to brief elected officials, members of the CWG, and tribal representatives on project plans and implementation, including various aspects and stages of the Interim Measures. DTSC and PG&E will continue to host site tours as the project progresses.

1.4.6 Sovereign Nation Briefings

DTSC and PG&E committed to keeping the members and leaders of local Indian tribes informed. DTSC and PG&E have met regularly with staff and members of the Fort Mojave,

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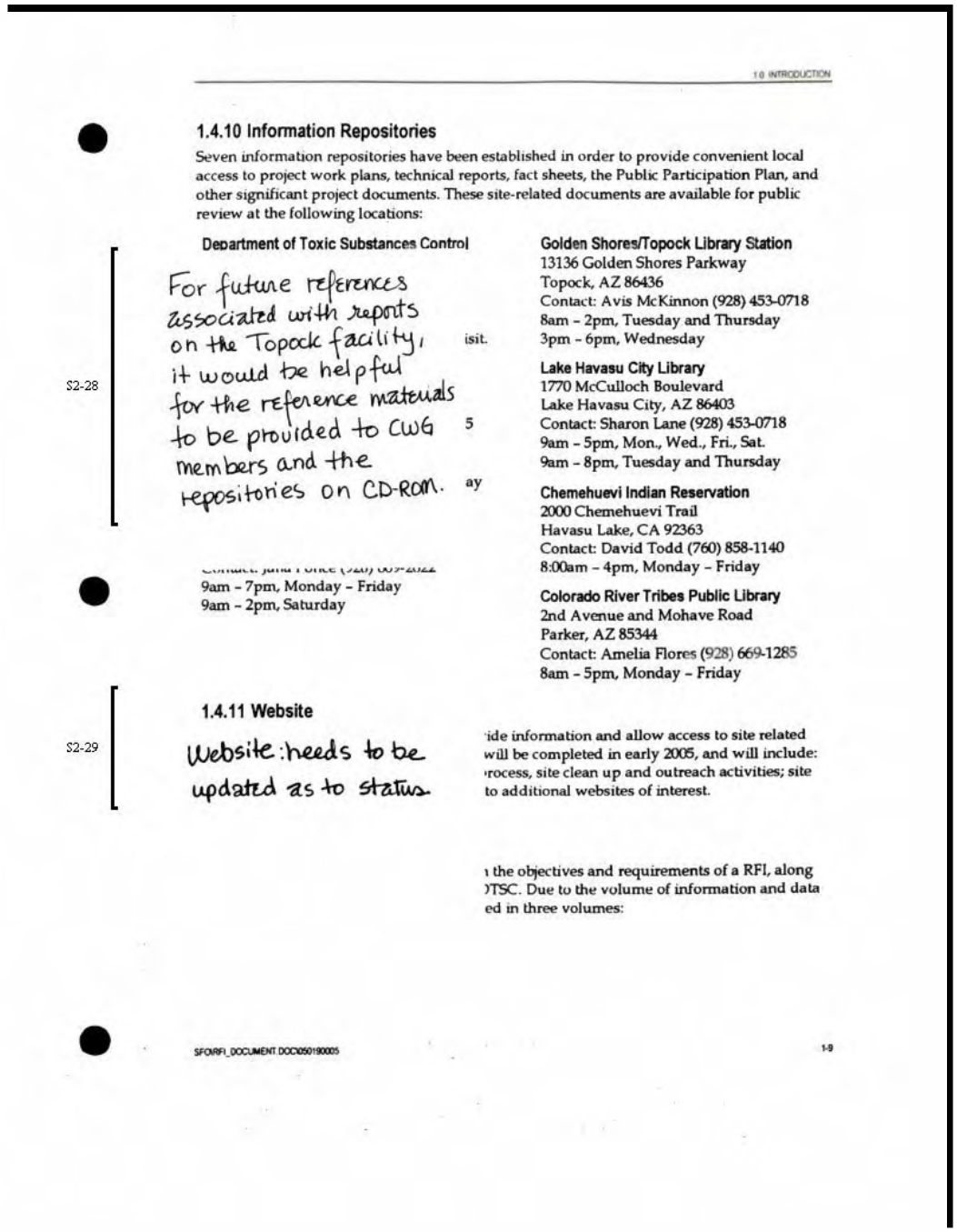
Response to Comment S2-27(RS_110105_68)

DTSC RESPONSE: PG&E shall address this comment and update the text

PG&E RESPONSE: Per direction from DTSC, Section 1.4 has been streamlined, and the reader is referred to the Public Participation Plan for detailed information. This change has not been made.



1.0 INTRODUCTION

1.4.10 Information Repositories

Seven information repositories have been established in order to provide convenient local access to project work plans, technical reports, fact sheets, the Public Participation Plan, and other significant project documents. These site-related documents are available for public review at the following locations:

Department of Toxic Substances Control

For future references associated with reports on the Topock facility, it would be helpful for the reference materials to be provided to CWG members and the repositories on CD-ROM.

S2-28

isit.

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ay

[illegible]
9am - 7pm, Monday - Friday
9am - 2pm, Saturday

Golden Shores/Topock Library Station
13136 Golden Shores Parkway
Topock, AZ 86436
Contact: Avis McKinnon (928) 453-0718
8am - 2pm, Tuesday and Thursday
3pm - 6pm, Wednesday

Lake Havasu City Library
1770 McCulloch Boulevard
Lake Havasu City, AZ 86403
Contact: Sharon Lane (928) 453-0718
9am - 5pm, Mon., Wed., Fri., Sat.
9am - 8pm, Tuesday and Thursday

Chemehuevi Indian Reservation
2000 Chemehuevi Trail
Havasu Lake, CA 92363
Contact: David Todd (760) 858-1140
8:00am - 4pm, Monday - Friday

Colorado River Tribes Public Library
2nd Avenue and Mohave Road
Parker, AZ 85344
Contact: Amelia Flores (928) 669-1285
8am - 5pm, Monday - Friday

1.4.11 Website

Website needs to be updated as to status.

S2-29

ide information and allow access to site related will be completed in early 2005, and will include: rocess, site clean up and outreach activities; site to additional websites of interest.

the objectives and requirements of a RFI, along TSC. Due to the volume of information and data ed in three volumes:

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1-9

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Response to Comment S2-28(RS_110105_69)

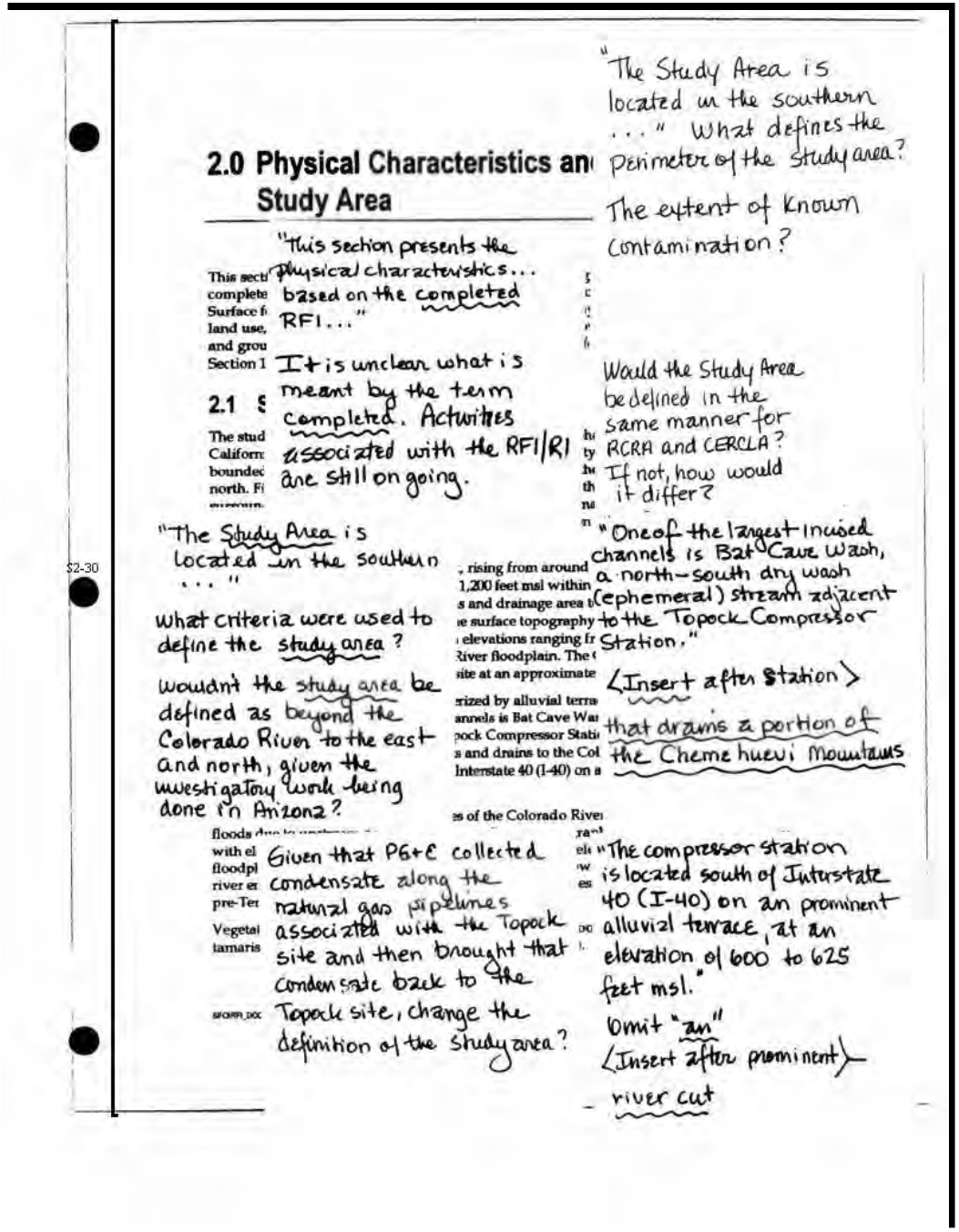
DTSC RESPONSE: Comment Noted. PG&E is not required to address this comment at this time. Documents referenced in the RFI/RI have been provided in hardcopy and placed in several central locations. Providing these documents on CD to CWG members may be considered in the future.

PG&E RESPONSE: No response required.

Response to Comment S2-29(RS_110105_70)

DTSC RESPONSE: Comment Noted. PG&E is not required to address this comment at this time. The Website will be continually updated. However, this activity is not part of the RFI/RI.

PG&E RESPONSE: No response required.



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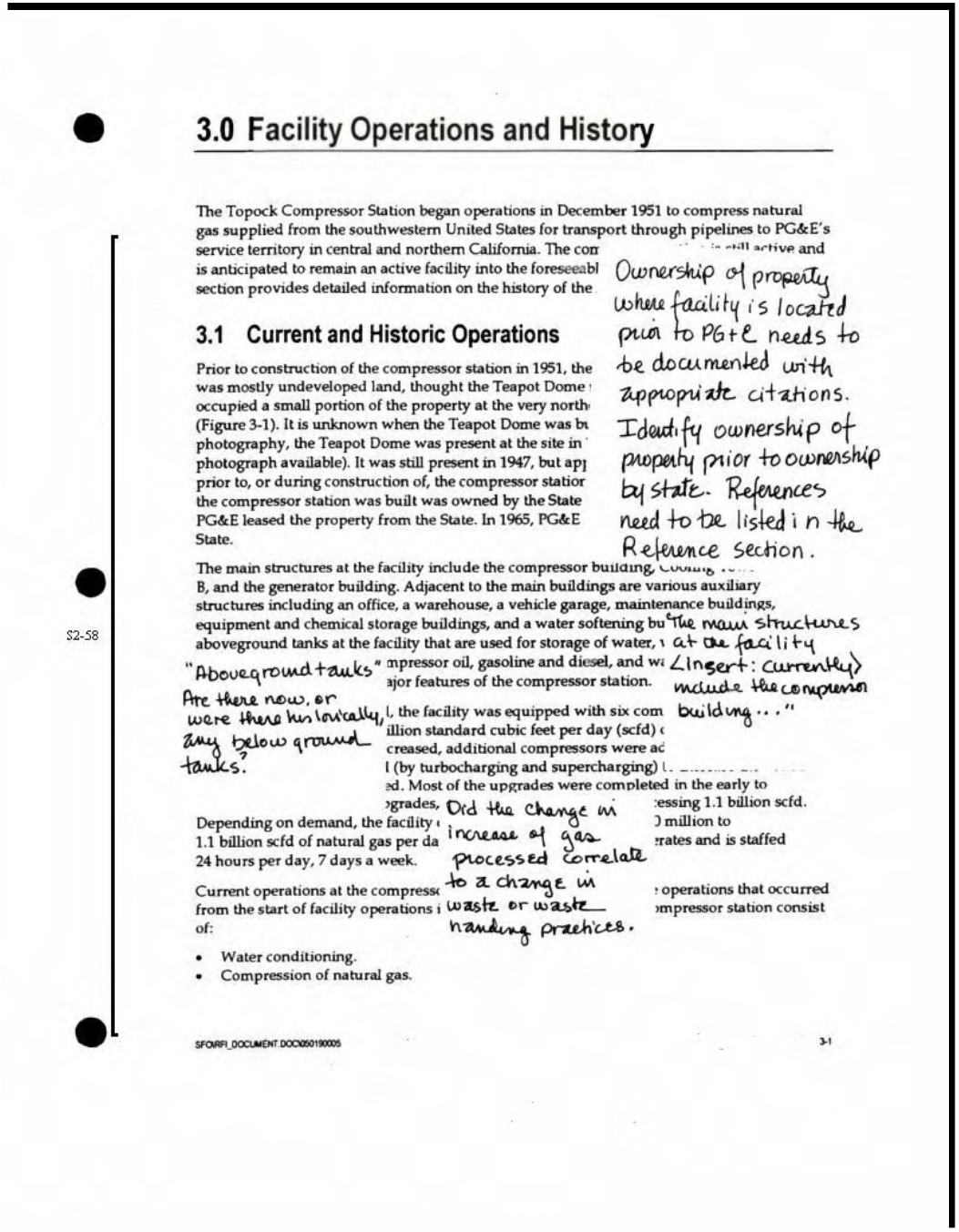
Response to Comment S2-30(RS_110105_71)

DTSC RESPONSE: PG&E shall address this comment and update the text to better define the study area in future documents. The remaining editorial comments may be incorporated as desired.

PG&E RESPONSE: The western extent of the study area has been clarified. A portion of the requested editorial changes have been incorporated.

DTSC RESPONSE: PG&E shall clarify that the text refers to RFI/RI work "completed to date".

PG&E RESPONSE: The text has been revised to refer to the relevant types of source documents only.



3.0 Facility Operations and History

The Topock Compressor Station began operations in December 1951 to compress natural gas supplied from the southwestern United States for transport through pipelines to PG&E's service territory in central and northern California. The com ... is still active and is anticipated to remain an active facility into the foreseeabl ... section provides detailed information on the history of the ...

Ownership of property where facility is located prior to PG+E needs to be documented with appropriate citations. Identify ownership of property prior to ownership by state. References need to be listed in the Reference section.

3.1 Current and Historic Operations

Prior to construction of the compressor station in 1951, the ... was mostly undeveloped land, thought the Teapot Dome ... occupied a small portion of the property at the very north ... (Figure 3-1). It is unknown when the Teapot Dome was bu ... photography, the Teapot Dome was present at the site in ... photograph available). It was still present in 1947, but apj ... prior to, or during construction of, the compressor statior ... the compressor station was built was owned by the State ... PG&E leased the property from the State. In 1965, PG&E ... State.

S2-58

The main structures at the facility include the compressor building, ... B, and the generator building. Adjacent to the main buildings are various auxiliary structures including an office, a warehouse, a vehicle garage, maintenance buildings, equipment and chemical storage buildings, and a water softening bu ... aboveground tanks at the facility that are used for storage of water, ... mpressor oil, gasoline and diesel, and wa ... ajor features of the compressor station.

"Aboveground tanks" Are there now, or were there historically, any below ground tanks?

The main structures at the facility <Insert: currently> include the compressor building..."

... l, the facility was equipped with six com ... illion standard cubic feet per day (scfd) ... creased, additional compressors were ad ... l (by turbocharging and supercharging) ... ed. Most of the upgrades were completed in the early to ... ›grades, ... essing 1.1 billion scfd. ...) million to ... erates and is staffed

Did the change in increase of gas processed correlate to a change in waste or waste handing practices.

Depending on demand, the facility ... 1.1 billion scfd of natural gas per da ... 24 hours per day, 7 days a week.

Current operations at the compress ... from the start of facility operations ... of: ... operations that occurred ... ompressor station consist

- Water conditioning.
- Compression of natural gas.

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Response to Comment S2-58(RS_101805_36)

DTSC RESPONSE: PG&E shall address this comment and update the historic ownership of the property with available information.

The word "currently" shall be inserted as requested.

Comment Noted. PG&E is not required to address this comment at this time. Underground tanks are discussed in detail in Section 3.1.5.1.

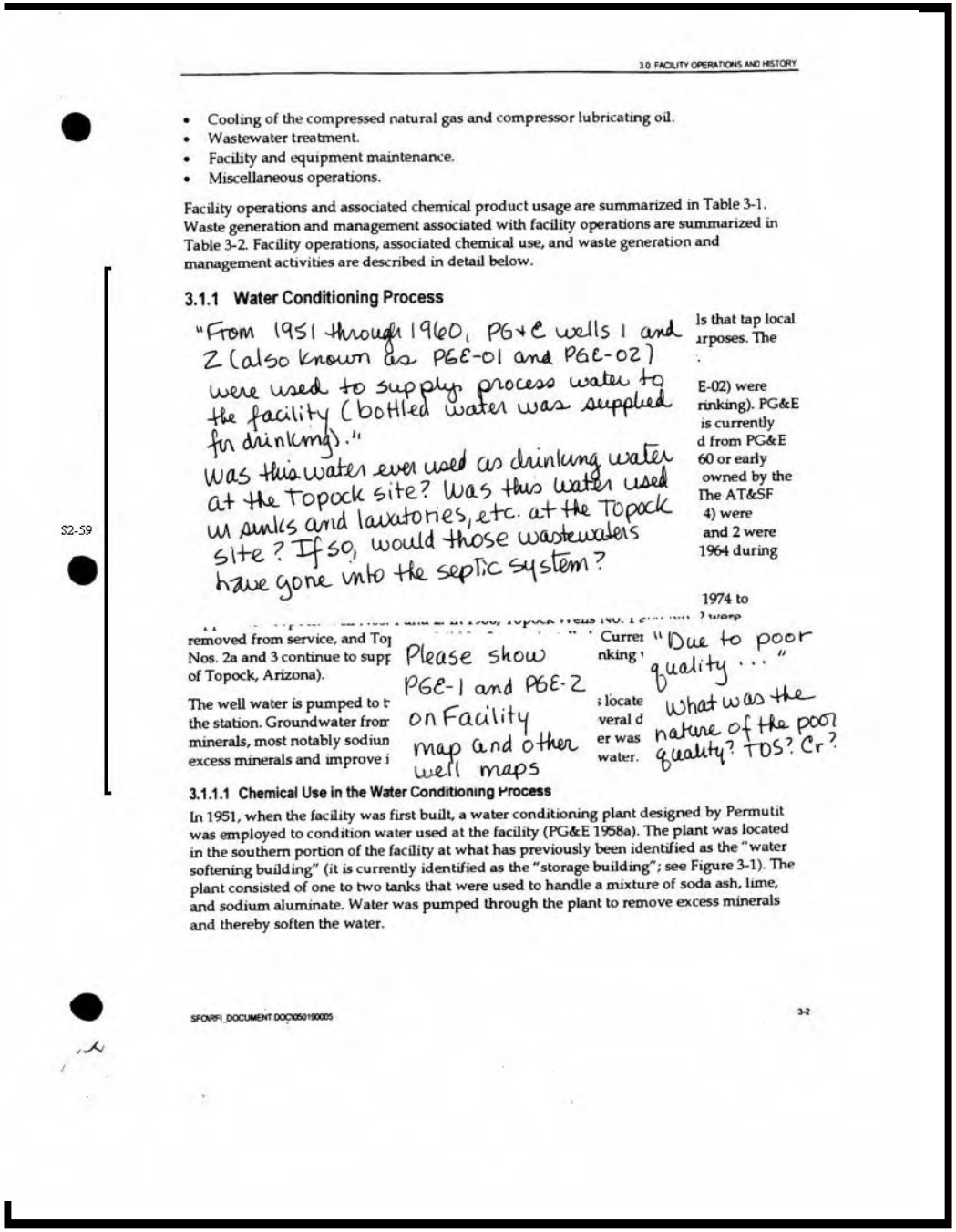
Information on changes in gas processed and associated changes in waste/waste handing shall be provided as available. See also response to Comment S2-1.

PG&E RESPONSE: No additional information regarding historic property ownership was identified during the supplemental site history review.

The word "currently" was inserted as requested.

No response required. Underground tanks are discussed in detail in Section 3.1.5.1.

No response required. See response to Comment S2-1.



3.0 FACILITY OPERATIONS AND HISTORY

- Cooling of the compressed natural gas and compressor lubricating oil.
- Wastewater treatment.
- Facility and equipment maintenance.
- Miscellaneous operations.

Facility operations and associated chemical product usage are summarized in Table 3-1. Waste generation and management associated with facility operations are summarized in Table 3-2. Facility operations, associated chemical use, and waste generation and management activities are described in detail below.

3.1.1 Water Conditioning Process

"From 1951 through 1960, PG+E wells 1 and 2 (also known as PGE-01 and PGE-02) were used to supply process water to the facility (bottled water was supplied for drinking)."
Was this water ever used as drinking water at the Topock site? Was this water used in sinks and lavatories, etc. at the Topock site? If so, would those wastewaters have gone into the septic system?

S2-59

ls that tap local
urposes. The

E-02) were
rinking). PG&E
is currently
d from PG&E
60 or early
owned by the
The AT&SF
4) were
and 2 were
1964 during

1974 to

removed from service, and To
Nos. 2a and 3 continue to supp
of Topock, Arizona).

Please show PGE-1 and PGE-2 on Facility map and other well maps

Curre
nking'

"Due to poor quality ..." What was the nature of the poor quality? TDS? Cr?

The well water is pumped to t
the station. Groundwater from
minerals, most notably sodiun
excess minerals and improve i

; locate
veral d
er was
water.

3.1.1.1 Chemical Use in the Water Conditioning Process

In 1951, when the facility was first built, a water conditioning plant designed by Permutit was employed to condition water used at the facility (PG&E 1958a). The plant was located in the southern portion of the facility at what has previously been identified as the "water softening building" (it is currently identified as the "storage building"; see Figure 3-1). The plant consisted of one to two tanks that were used to handle a mixture of soda ash, lime, and sodium aluminate. Water was pumped through the plant to remove excess minerals and thereby soften the water.

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Response to Comment S2-59(RS_101805_38)

DTSC RESPONSE: PG&E shall address this comment and update the text. PG&E shall determine if water derived from wells PGE-01 and PGE-02 was apparently used for all domestic purposes except drinking water and that domestic wastewater presumably was discharged to a septic system.

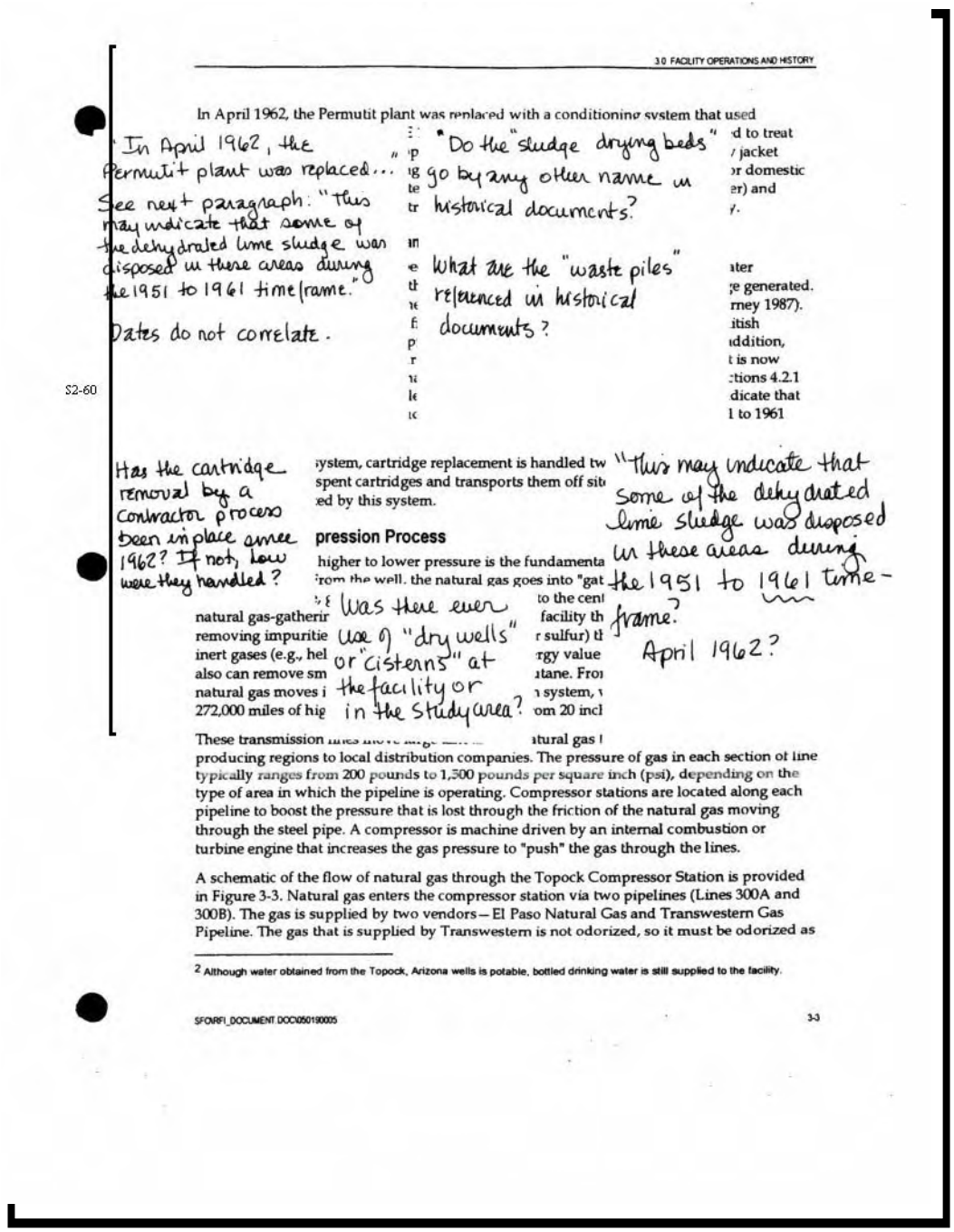
Comment Noted. PG&E is not required to address this comment at this time. The locations of wells PGE-01 and PGE-02 are shown on Figure 3-2.

The predominate water quality issue with wells PGE-01 and PGE-02 was TDS. PG&E shall revise the text as necessary.

PG&E RESPONSE: The text was updated as requested.

No response required.

The text was revised to indicate that the predominant water quality issue with wells PGE-01 and PGE-02 was TDS (high iron and chloride).



3.0 FACILITY OPERATIONS AND HISTORY

In April 1962, the Permutit plant was replaced with a conditioning system that used

"In April 1962, the Permutit plant was replaced... See next paragraph: "This may indicate that some of the dehydrated lime sludge was disposed in these areas during the 1951 to 1961 timeframe." Dates do not correlate.

"Do the "sludge drying beds" go by any other name in historical documents?

What are the "waste piles" referenced in historical documents?

S2-60

Has the cartridge removal by a contractor process been in place since 1962? If not, how were they handled?

system, cartridge replacement is handled tw
spent cartridges and transports them off site
ed by this system.

"This may indicate that some of the dehydrated lime sludge was disposed in these areas during the 1951 to 1961 time-frame."

April 1962?

pression Process

higher to lower pressure is the fundamenta
from the well. the natural gas goes into "gat

Was there ever use of "dry wells" or "cisterns" at the facility or in the Study area?

natural gas-gatherir to the cent
removing impuritie facility th
inert gases (e.g., hel r sulfur) tl
also can remove sm rgy value
natural gas moves i itane. Fro
272,000 miles of hig system, om 20 incl

These transmission atural gas
producing regions to local distribution companies. The pressure of gas in each section of line typically ranges from 200 pounds to 1,500 pounds per square inch (psi), depending on the type of area in which the pipeline is operating. Compressor stations are located along each pipeline to boost the pressure that is lost through the friction of the natural gas moving through the steel pipe. A compressor is machine driven by an internal combustion or turbine engine that increases the gas pressure to "push" the gas through the lines.

A schematic of the flow of natural gas through the Topock Compressor Station is provided in Figure 3-3. Natural gas enters the compressor station via two pipelines (Lines 300A and 300B). The gas is supplied by two vendors – El Paso Natural Gas and Transwestern Gas Pipeline. The gas that is supplied by Transwestern is not odorized, so it must be odorized as

[2] Although water obtained from the Topock, Arizona wells is potable, bottled drinking water is still supplied to the facility.

SFORFI_DOCUMENT.DOC050190005 3-3

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Response to Comment S2-60(RS_101805_6)

DTSC RESPONSE: PG&E shall address this comment and clarify and update the text. Statement regarding lime sludge disposal should read "1951 to 1962", not "1951 to 1961".

It is possible that other “names” may have been used for the Sludge Dry Beds; PG&E shall identify if possible.

Comment Noted. PG&E is not required to address this comment at this time. Since no citation for where the term "waste piles" is used. PG&E is not able to make an assessment whether the terms refer to the same or separate features

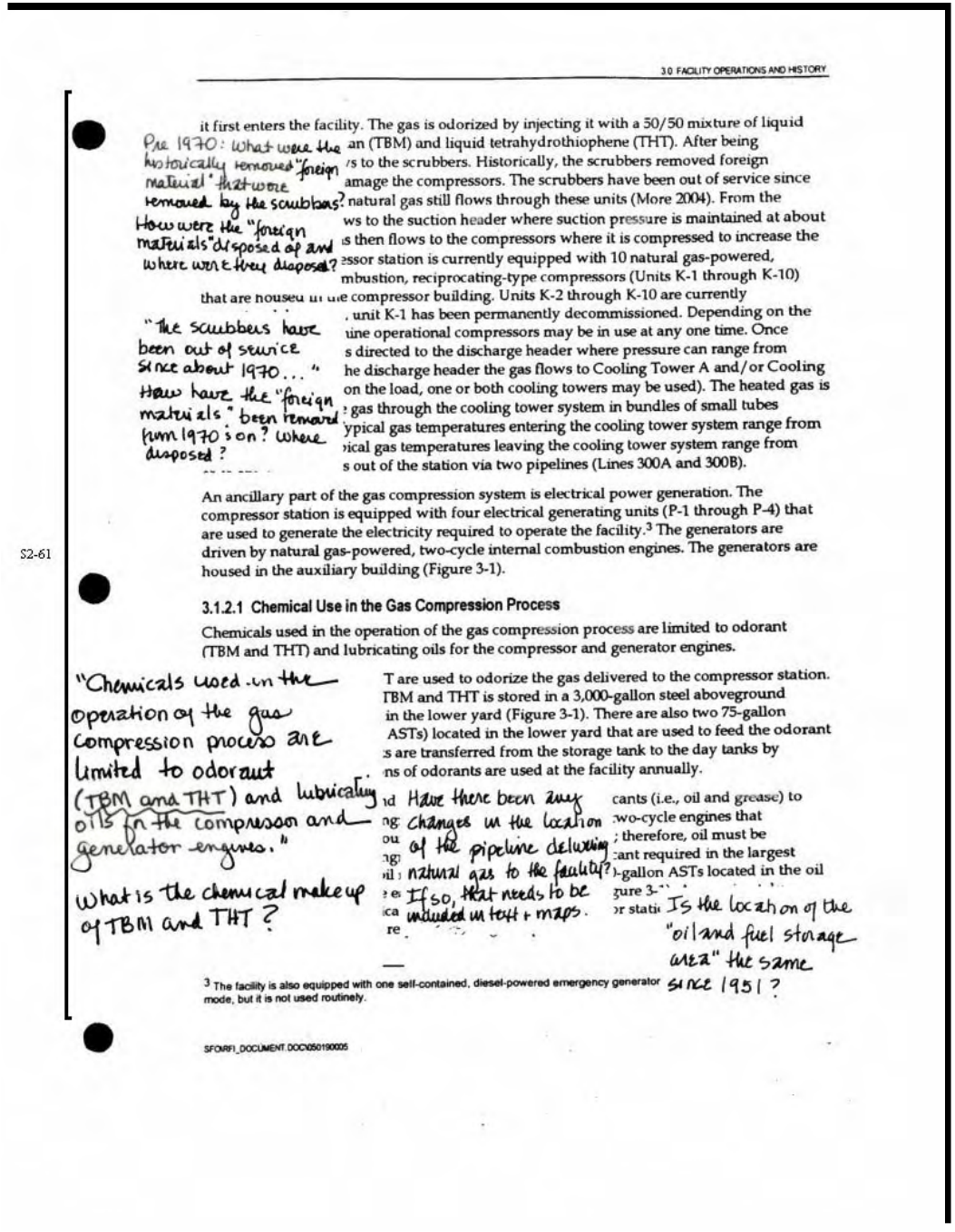
PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt to gather additional information on dry wells and cisterns, and on cartridge removal. See also the response to Comment S2-1.

PG&E RESPONSE: The text was revised as requested.

No other names for the sludge-drying beds were identified as part of the additional site history review.

No response required.

Available information suggests that cartridges were removed and regenerated starting in 1962 (when the cartridge system was put into service). This information has been included in the text. There is no information to suggest that dry wells or cisterns were used at the site.



3.0 FACILITY OPERATIONS AND HISTORY

it first enters the facility. The gas is odorized by injecting it with a 50/50 mixture of liquid an (TBM) and liquid tetrahydrothiophene (THT). After being /s to the scrubbers. Historically, the scrubbers removed foreign amage the compressors. The scrubbers have been out of service since natural gas still flows through these units (More 2004). From the ws to the suction header where suction pressure is maintained at about s then flows to the compressors where it is compressed to increase the essor station is currently equipped with 10 natural gas-powered, mbustion, reciprocating-type compressors (Units K-1 through K-10) that are housed in the compressor building. Units K-2 through K-10 are currently , unit K-1 has been permanently decommissioned. Depending on the ine operational compressors may be in use at any one time. Once s directed to the discharge header where pressure can range from he discharge header the gas flows to Cooling Tower A and/or Cooling on the load, one or both cooling towers may be used). The heated gas is gas through the cooling tower system in bundles of small tubes ypical gas temperatures entering the cooling tower system range from ical gas temperatures leaving the cooling tower system range from s out of the station via two pipelines (Lines 300A and 300B).

Pre 1970: What were the historically removed "foreign material" that were removed by the scrubbers?

How were the "foreign materials" disposed of and where were they disposed?

"The scrubbers have been out of service since about 1970..." How have the "foreign materials" been removed from 1970's on? Where disposed?

An ancillary part of the gas compression system is electrical power generation. The compressor station is equipped with four electrical generating units (P-1 through P-4) that are used to generate the electricity required to operate the facility.[3] The generators are driven by natural gas-powered, two-cycle internal combustion engines. The generators are housed in the auxiliary building (Figure 3-1).

S2-61

3.1.2.1 Chemical Use in the Gas Compression Process

Chemicals used in the operation of the gas compression process are limited to odorant (TBM and THT) and lubricating oils for the compressor and generator engines.

"Chemicals used in the operation of the gas compression process are limited to odorant (TBM and THT) and lubricating oils for the compressor and generator engines."

What is the chemical makeup of TBM and THT?

T are used to odorize the gas delivered to the compressor station. TBM and THT is stored in a 3,000-gallon steel aboveground in the lower yard (Figure 3-1). There are also two 75-gallon ASTs) located in the lower yard that are used to feed the odorant s are transferred from the storage tank to the day tanks by ns of odorants are used at the facility annually.

Have there been any changes in the location of the pipeline delivering natural gas to the facility? If so, that needs to be included in text + maps.

cants (i.e., oil and grease) to wo-cycle engines that ; therefore, oil must be ant required in the largest -gallon ASTs located in the oil gure 3- or stati

Is the location of the "oil and fuel storage area" the same since 1951?

[3] The facility is also equipped with one self-contained, diesel-powered emergency generator mode, but it is not used routinely.

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Response to Comment S2-61(RS_101805_7)

DTSC RESPONSE: PG&E shall address this comment regarding "foreign Material" and update/clarify the text.

Comment Noted. PG&E is not required to address this comment at this time. Handling and disposal of scrubber waste (both pre- and post-1970) are discussed in Section 3.1.2.2.

PG&E shall address this comment to clarify that the fuel and oil storage area has been in the same location since the station was constructed in 1951.

PG&E shall address this comment and describe the chemical make up of TBM and THT.

PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall attempt to gather additional information on the incoming gas pipeline. See also the response to Comment S2-1.

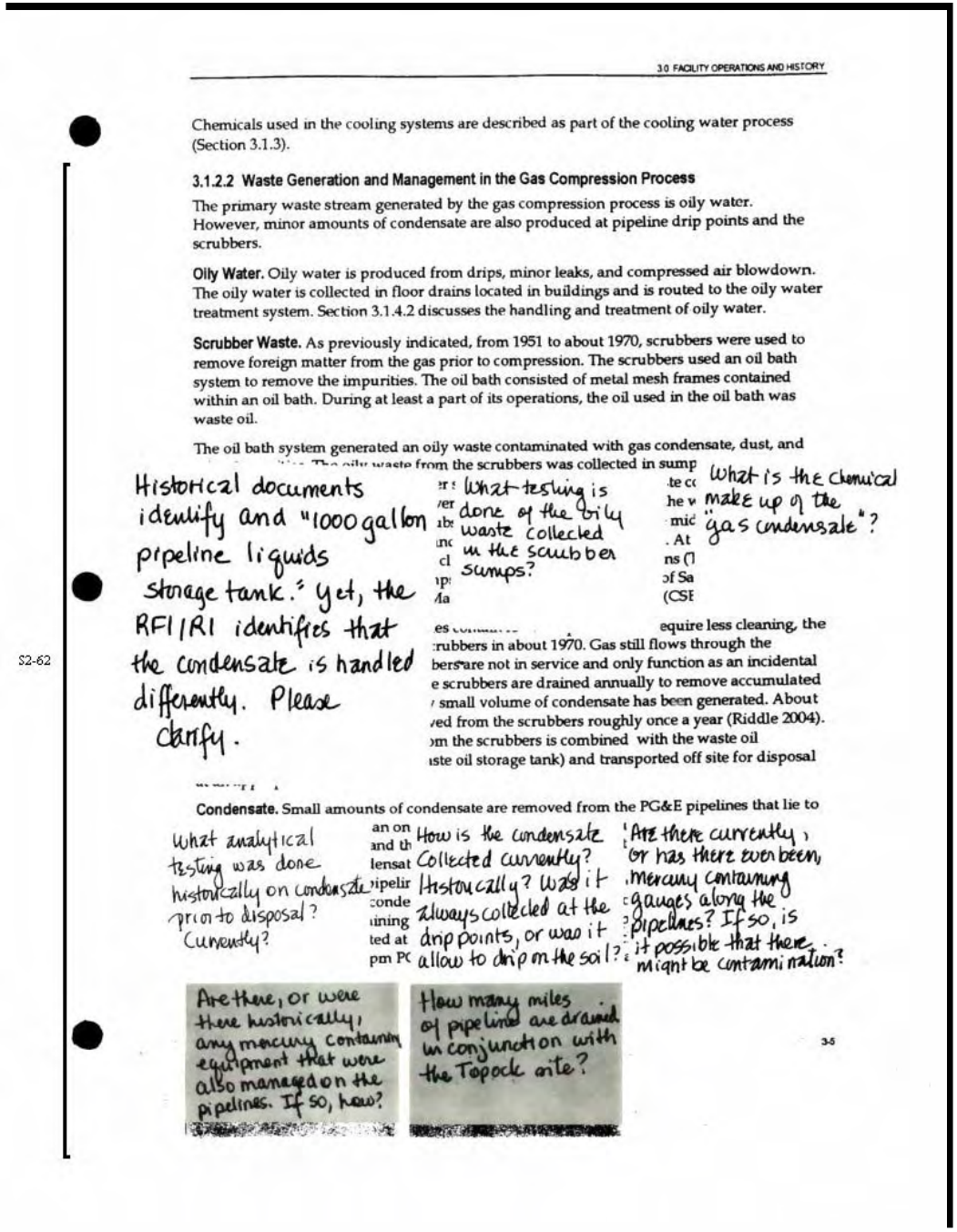
PG&E RESPONSE: The discussion of pipeline liquids, including composition, source, and disposal, has been expanded and clarified (see Section 3.1.2.2).

No response required.

The text was revised as requested.

The text was revised as requested.

The pipelines have generally been in the same locations as they are today. No changes to the document are required.



3.0 FACILITY OPERATIONS AND HISTORY

Chemicals used in the cooling systems are described as part of the cooling water process (Section 3.1.3).

3.1.2.2 Waste Generation and Management in the Gas Compression Process

The primary waste stream generated by the gas compression process is oily water. However, minor amounts of condensate are also produced at pipeline drip points and the scrubbers.

Oily Water. Oily water is produced from drips, minor leaks, and compressed air blowdown. The oily water is collected in floor drains located in buildings and is routed to the oily water treatment system. Section 3.1.4.2 discusses the handling and treatment of oily water.

Scrubber Waste. As previously indicated, from 1951 to about 1970, scrubbers were used to remove foreign matter from the gas prior to compression. The scrubbers used an oil bath system to remove the impurities. The oil bath consisted of metal mesh frames contained within an oil bath. During at least a part of its operations, the oil used in the oil bath was waste oil.

The oil bath system generated an oily waste contaminated with gas condensate, dust, and

Historical documents identify and "1000 gallon pipeline liquids storage tank." Yet, the RFI/RI identifies that the condensate is handled differently. Please clarify.

What testing is done of the oily waste collected in the scrubber sumps?

What is the chemical make up of the "gas condensate"?

S2-62

equire less cleaning, the
rubbers in about 1970. Gas still flows through the
bers are not in service and only function as an incidental
e scrubbers are drained annually to remove accumulated
small volume of condensate has been generated. About
ed from the scrubbers roughly once a year (Riddle 2004).
m the scrubbers is combined with the waste oil
iste oil storage tank) and transported off site for disposal

Condensate. Small amounts of condensate are removed from the PG&E pipelines that lie to

What analytical testing was done historically on condensate prior to disposal? Currently?

How is the condensate Collected currently? Historically? Was it always collected at the drip points, or was it allow to drip on the soil?

Are there currently, or has there ever been, mercury containing gauges along the pipelines? If so, is it possible that there might be contamination?

Are there, or were there historically, any mercury containing equipment that were also managed on the pipelines. If so, how?

How many miles of pipeline are drained in conjunction with the Topock site?

3-5

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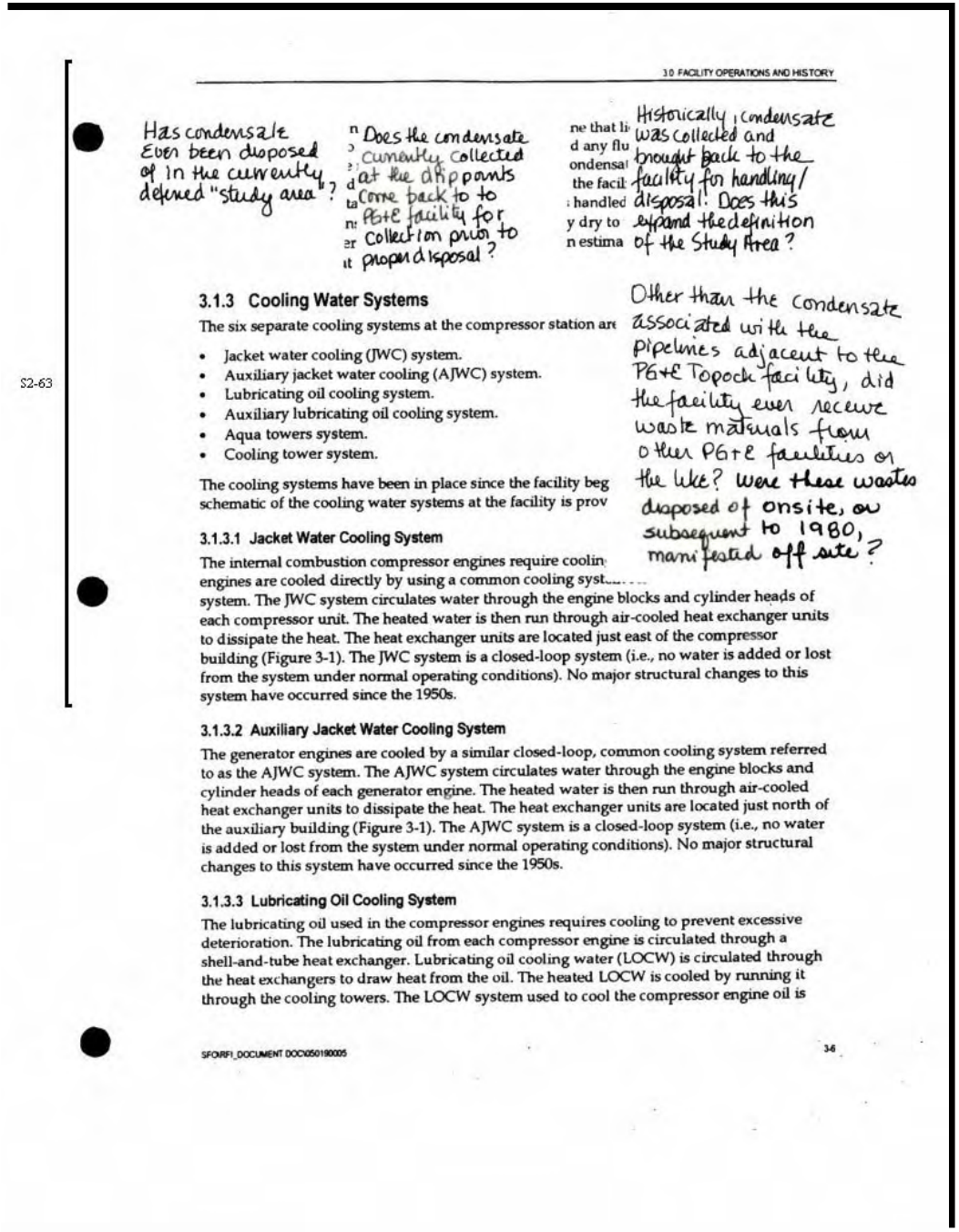
Response to Comment S2-62(RS_101805_39)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt to identify the additional requested information. See also the response to Comment S2-1.

PG&E RESPONSE: Available information on the pipeline liquids tank has been added to the document (Sections 3.1.2.2 and 4.3.2).



3.0 FACILITY OPERATIONS AND HISTORY

Has condensate Ever been disposed of in the currently defined "study area"?

Does the condensate currently collected at the drip points come back to to PG&E facility for collection prior to proper disposal?

Historically, condensate was collected and brought back to the facility for handling/ disposal. Does this expand the definition of the Study Area?

3.1.3 Cooling Water Systems

Other than the condensate associated with the pipelines adjacent to the PG&E Topock facility, did the facility ever receive waste materials from other PG&E facilities or the like? Were these wastes disposed of onsite, or subsequent to 1980, manifested off site?

S2-63

The six separate cooling systems at the compressor station are

- Jacket water cooling (JWC) system.
- Auxiliary jacket water cooling (AJWC) system.
- Lubricating oil cooling system.
- Auxiliary lubricating oil cooling system.
- Aqua towers system.
- Cooling tower system.

The cooling systems have been in place since the facility beg schematic of the cooling water systems at the facility is prov

3.1.3.1 Jacket Water Cooling System

The internal combustion compressor engines require coolin engines are cooled directly by using a common cooling syst system. The JWC system circulates water through the engine blocks and cylinder heads of each compressor unit. The heated water is then run through air-cooled heat exchanger units to dissipate the heat. The heat exchanger units are located just east of the compressor building (Figure 3-1). The JWC system is a closed-loop system (i.e., no water is added or lost from the system under normal operating conditions). No major structural changes to this system have occurred since the 1950s.

3.1.3.2 Auxiliary Jacket Water Cooling System

The generator engines are cooled by a similar closed-loop, common cooling system referred to as the AJWC system. The AJWC system circulates water through the engine blocks and cylinder heads of each generator engine. The heated water is then run through air-cooled heat exchanger units to dissipate the heat. The heat exchanger units are located just north of the auxiliary building (Figure 3-1). The AJWC system is a closed-loop system (i.e., no water is added or lost from the system under normal operating conditions). No major structural changes to this system have occurred since the 1950s.

3.1.3.3 Lubricating Oil Cooling System

The lubricating oil used in the compressor engines requires cooling to prevent excessive deterioration. The lubricating oil from each compressor engine is circulated through a shell-and-tube heat exchanger. Lubricating oil cooling water (LOCW) is circulated through the heat exchangers to draw heat from the oil. The heated LOCW is cooled by running it through the cooling towers. The LOCW system used to cool the compressor engine oil is

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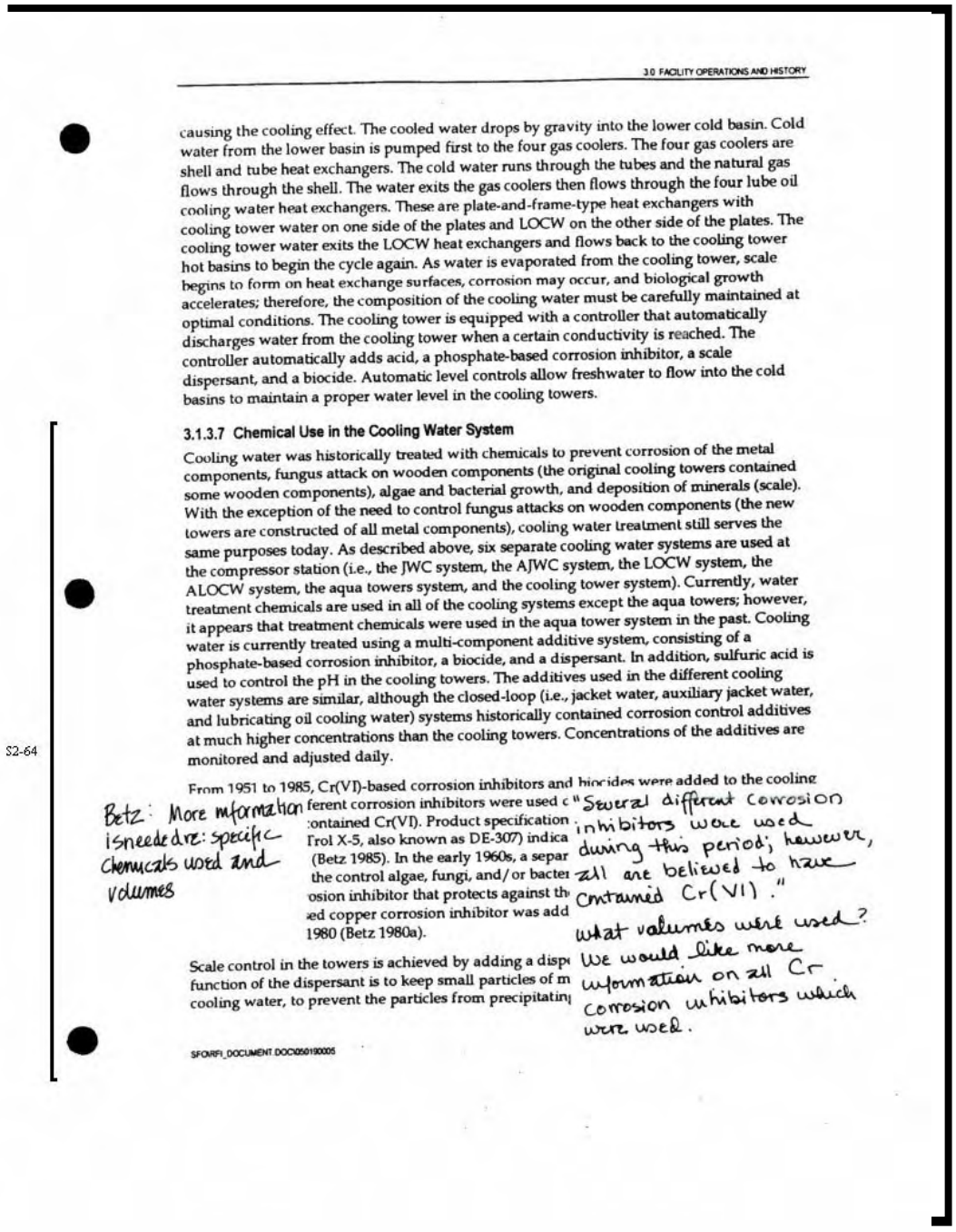
Response to Comment S2-63(RS_101805_40)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt to respond to the additional requested information. See also the response to Comment S2-1.

PG&E RESPONSE: The text was revised (Section 3.1.2.2) to state that pipeline liquids currently collected at the drip points do come back to the facility prior to proper disposal. However, this does not expand the definition of the study area. Past disposal practices may have included the spraying of pipeline liquids on plant roads; this information is also provided in Section 3.1.2.2.

The text was revised to state that there has been no known record of waste disposal from offsite locations.



3.0 FACILITY OPERATIONS AND HISTORY

causing the cooling effect. The cooled water drops by gravity into the lower cold basin. Cold water from the lower basin is pumped first to the four gas coolers. The four gas coolers are shell and tube heat exchangers. The cold water runs through the tubes and the natural gas flows through the shell. The water exits the gas coolers then flows through the four lube oil cooling water heat exchangers. These are plate-and-frame-type heat exchangers with cooling tower water on one side of the plates and LOCW on the other side of the plates. The cooling tower water exits the LOCW heat exchangers and flows back to the cooling tower hot basins to begin the cycle again. As water is evaporated from the cooling tower, scale begins to form on heat exchange surfaces, corrosion may occur, and biological growth accelerates; therefore, the composition of the cooling water must be carefully maintained at optimal conditions. The cooling tower is equipped with a controller that automatically discharges water from the cooling tower when a certain conductivity is reached. The controller automatically adds acid, a phosphate-based corrosion inhibitor, a scale dispersant, and a biocide. Automatic level controls allow freshwater to flow into the cold basins to maintain a proper water level in the cooling towers.

3.1.3.7 Chemical Use in the Cooling Water System

Cooling water was historically treated with chemicals to prevent corrosion of the metal components, fungus attack on wooden components (the original cooling towers contained some wooden components), algae and bacterial growth, and deposition of minerals (scale). With the exception of the need to control fungus attacks on wooden components (the new towers are constructed of all metal components), cooling water treatment still serves the same purposes today. As described above, six separate cooling water systems are used at the compressor station (i.e., the JWC system, the AJWC system, the LOCW system, the ALOCW system, the aqua towers system, and the cooling tower system). Currently, water treatment chemicals are used in all of the cooling systems except the aqua towers; however, it appears that treatment chemicals were used in the aqua tower system in the past. Cooling water is currently treated using a multi-component additive system, consisting of a phosphate-based corrosion inhibitor, a biocide, and a dispersant. In addition, sulfuric acid is used to control the pH in the cooling towers. The additives used in the different cooling water systems are similar, although the closed-loop (i.e., jacket water, auxiliary jacket water, and lubricating oil cooling water) systems historically contained corrosion control additives at much higher concentrations than the cooling towers. Concentrations of the additives are monitored and adjusted daily.

S2-64

From 1951 to 1985, Cr(VI)-based corrosion inhibitors and biocides were added to the cooling ferent corrosion inhibitors were used c
:ontained Cr(VI). Product specification
Trol X-5, also known as DE-307) indica
(Betz 1985). In the early 1960s, a separ
the control algae, fungi, and/or bacter
osion inhibitor that protects against th
ed copper corrosion inhibitor was add
1980 (Betz 1980a).

Scale control in the towers is achieved by adding a disp
function of the dispersant is to keep small particles of m
cooling water, to prevent the particles from precipitatin

SFO\RFI_DOCUMENT.DOC\050190005

Betz: More information is needed re: specific chemicals used and volumes

"Several different corrosion inhibitors were used during this period; however, all are believed to have contained Cr(VI)."

what volumes were used? We would like more information on all Cr corrosion inhibitors which were used.

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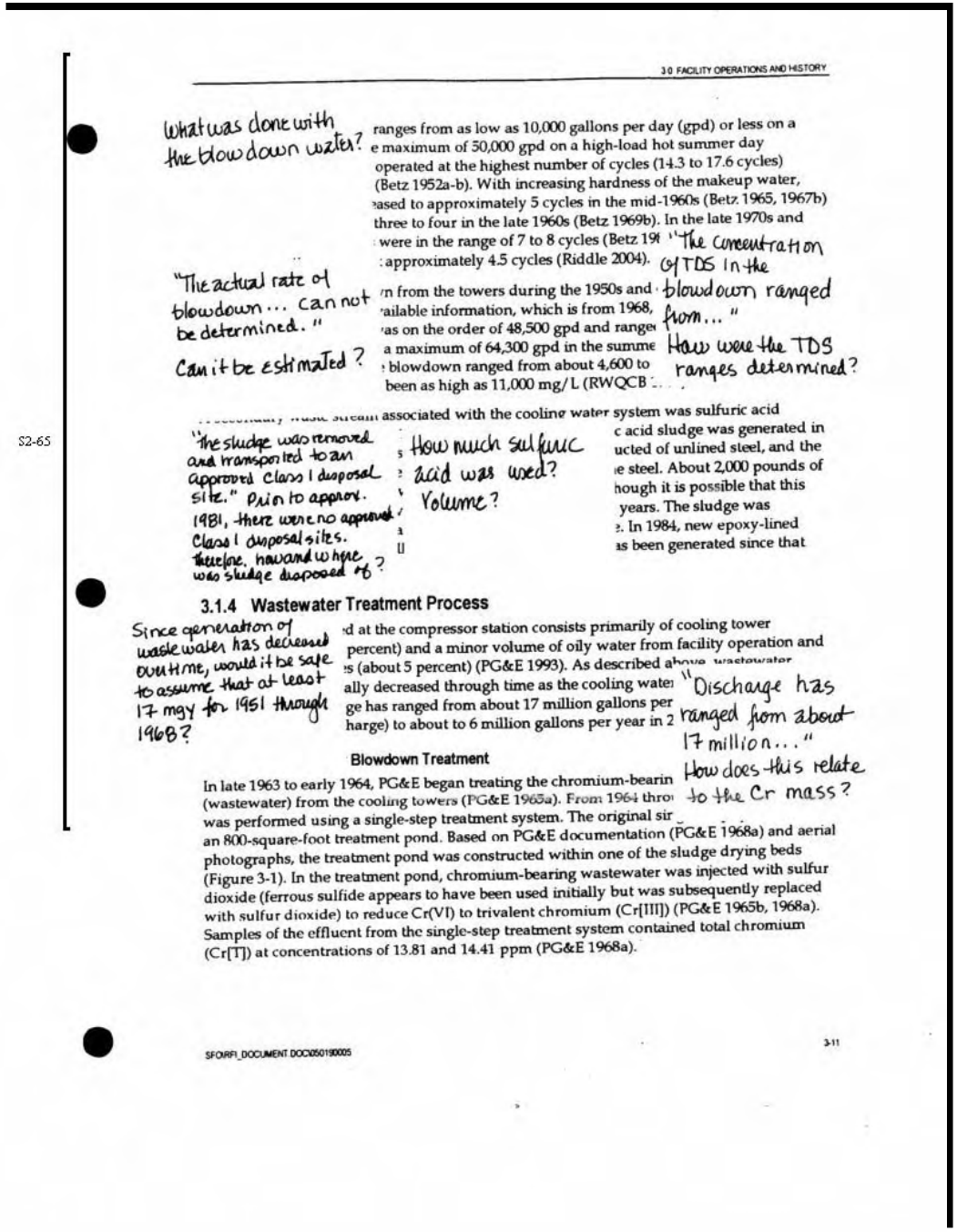
Response to Comment S2-64(RS_101805_8)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. According to PG&E, available information on the Betz products has been provided. Sources include monitoring and inspection reports prepared by Betz, Betz product information sheets, and correspondence between Betz and PG&E. PG&E shall provide additional clarification in the text. See also the response to Comment S2-1.

PG&E RESPONSE: A new table, Table 3-3, has been added to the text that summarizes the limited information available regarding chemicals ordered and stored at the facility. The lack of any other information is explicitly stated in Section 3.1.3.7.



3.0 FACILITY OPERATIONS AND HISTORY

What was done with the blowdown water?

ranges from as low as 10,000 gallons per day (gpd) or less on a
e maximum of 50,000 gpd on a high-load hot summer day
operated at the highest number of cycles (14.3 to 17.6 cycles)
(Betz 1952a-b). With increasing hardness of the makeup water,
ased to approximately 5 cycles in the mid-1960s (Betz 1965, 1967b)
three to four in the late 1960s (Betz 1969b). In the late 1970s and
were in the range of 7 to 8 cycles (Betz 19
approximately 4.5 cycles (Riddle 2004).

"The concentration of TDS in the blowdown ranged from..."

"The actual rate of blowdown... can not be determined."

Can it be estimated?

How were the TDS ranges determined?

n from the towers during the 1950s and
ailable information, which is from 1968,
as on the order of 48,500 gpd and range
a maximum of 64,300 gpd in the summe
blowdown ranged from about 4,600 to
been as high as 11,000 mg/L (RWQCB

S2-65

associated with the cooling water system was sulfuric acid
c acid sludge was generated in
ucted of unlined steel, and the
e steel. About 2,000 pounds of
hough it is possible that this
years. The sludge was
. In 1984, new epoxy-lined
as been generated since that

"the sludge was removed and transported to an approved Class I disposal site." Prior to approx. 1981, there were no approved Class I disposal sites. therefore, how and where was sludge disposed of?

How much sulfuric acid was used? Volume?

3.1.4 Wastewater Treatment Process

Since generation of wastewater has decreased overtime, would it be safe to assume that at least 17 mgy for 1951 through 1968?

d at the compressor station consists primarily of cooling tower
percent) and a minor volume of oily water from facility operation and
s (about 5 percent) (PG&E 1993). As described above, wastewater
ally decreased through time as the cooling wate
ge has ranged from about 17 million gallons per
harge) to about to 6 million gallons per year in 2

"Discharge has ranged from about 17 million..."

How does this relate to the Cr mass?

Blowdown Treatment

In late 1963 to early 1964, PG&E began treating the chromium-bearin
(wastewater) from the cooling towers (PG&E 1965a). From 1964 thro
was performed using a single-step treatment system. The original sir
an 800-square-foot treatment pond. Based on PG&E documentation (PG&E 1968a) and aerial photographs, the treatment pond was constructed within one of the sludge drying beds (Figure 3-1). In the treatment pond, chromium-bearing wastewater was injected with sulfur dioxide (ferrous sulfide appears to have been used initially but was subsequently replaced with sulfur dioxide) to reduce Cr(VI) to trivalent chromium (Cr[III]) (PG&E 1965b, 1968a). Samples of the effluent from the single-step treatment system contained total chromium (Cr[T]) at concentrations of 13.81 and 14.41 ppm (PG&E 1968a).

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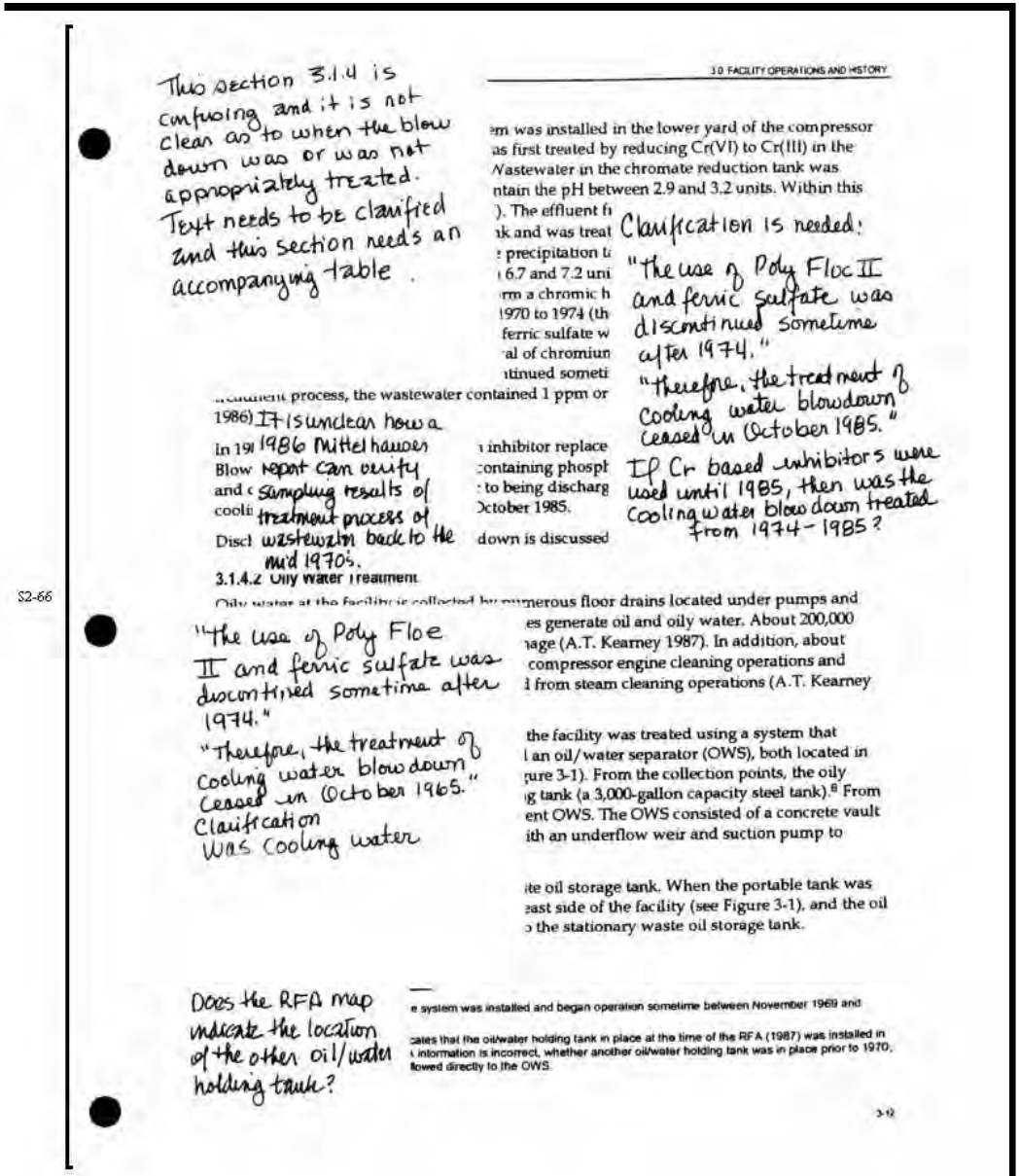
Response to Comment S2-65(RS_101805_41)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt respond to the additional requested information. See also the response to Comment S2-1.

PG&E RESPONSE: The processing and treatment of blowdown water is described in detail in the text (Section 3.1.3.8). The blowdown rate cannot be estimated. As is stated in the text, it varies daily, seasonally, and annually, depending on temperature, gas flow, additive efficiency, etc. No minimum or discharge rate or trend can be determined. It is not known how TDS ranges were determined; however, some historic laboratory data reports provide information that could be used in calculating TDS. The volume of sulfuric acid used is unknown. The sulfuric acid tanks have a capacity of 2,000 gallons. Chromium mass cannot be accurately estimated from the available data because chromium concentration data in the effluent are limited, and the actual concentration is likely to have varied extensively over time (see discussion in Section 3.1.3.7).



This section 3.1.4 is confusing and it is not clear as to when the blow down was or was not appropriately treated. Text needs to be clarified and this section needs an accompanying table.

3.0 FACILITY OPERATIONS AND HISTORY

em was installed in the lower yard of the compressor
as first treated by reducing Cr(VI) to Cr(III) in the
Wastewater in the chromate reduction tank was
ntain the pH between 2.9 and 3.2 units. Within this
). The effluent fi
ık and was treat
: precipitation ti
6.7 and 7.2 uni
rm a chromic h
1970 to 1974 (th
ferric sulfate w
al of chromium
ıtinued someti
...eatment process, the wastewater contained 1 ppm or
1986) It is unclear how a
In 19 1986 Mittelhauser
Blow report can verify
and c sampling results of
cooli treatment process of
Disc wastewater back to the
mid 1970's.
down is discussed

Clarification is needed:
"The use of Poly Floc II and ferric sulfate was discontinued sometime after 1974."
"Therefore, the treatment of cooling water blowdown ceased in October 1985."
If Cr based inhibitors were used until 1985, then was the cooling water blow down treated from 1974-1985?

inhibitor replace
containing phospl
to being discharg
October 1985.

3.1.4.2 Oily Water Treatment

S2-66

Oily water at the facility is collected by numerous floor drains located under pumps and
es generate oil and oily water. About 200,000
nage (A.T. Kearney 1987). In addition, about
compressor engine cleaning operations and
l from steam cleaning operations (A.T. Kearney

"The use of Poly Floc II and ferric sulfate was discontinued sometime after 1974."
"Therefore, the treatment of cooling water blowdown ceased in October 1965."
Clarification
Was cooling water

the facility was treated using a system that
l an oil/water separator (OWS), both located in
gure 3-1). From the collection points, the oily
g tank (a 3,000-gallon capacity steel tank).[8] From
ent OWS. The OWS consisted of a concrete vault
ith an underflow weir and suction pump to

ite oil storage tank. When the portable tank was
east side of the facility (see Figure 3-1), and the oil
o the stationary waste oil storage tank.

Does the RFA map indicate the location of the other oil/water holding tank?

e system was installed and began operation sometime between November 1969 and

cates that the oil/water holding tank in place at the time of the RFA (1987) was installed in
information is incorrect, whether another oil/water holding tank was in place prior to 1970,
lowed directly to the OWS.

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Response to Comment S2-66(RS_101805_9)

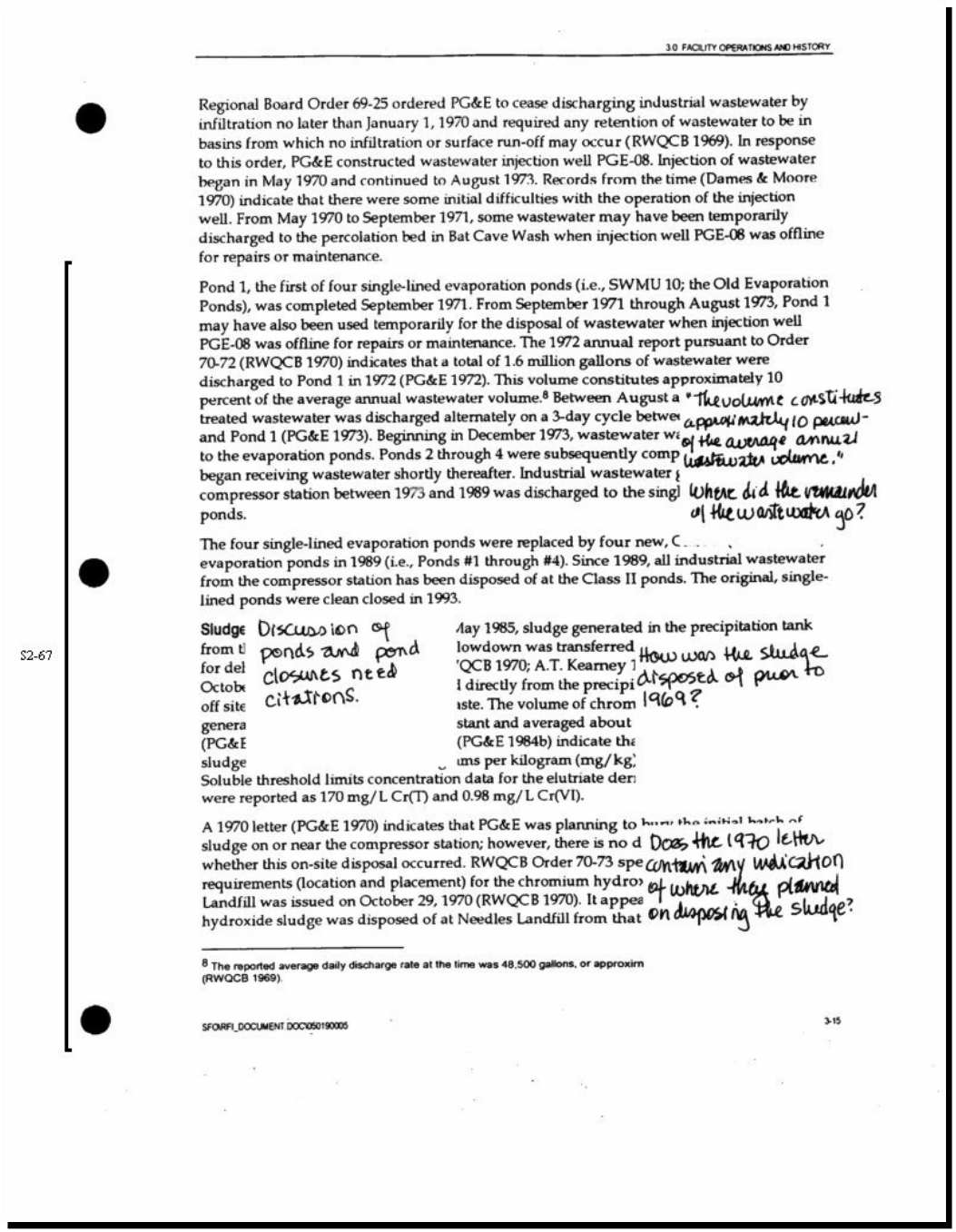
DTSC RESPONSE: Comment Noted. PG&E is not required to address this comment at this time. Section 3.1.4 clearly documents when and how blowdown was treated.

Poly Floc II and ferric sulfate were used to minimize particulate matter in the wastewater which was important while the injection well was being used. Once use of the injection was discontinued, the use of Poly Floc II and ferric sulfate was also discontinued (i.e., after 1974).

The Mittelhauser report (1986) contained copies of laboratory reports of blow down and wastewater samples collected in the mid 1970s. Mittelhauser used these data to identify contaminants of concern for the removal of the wastewater treatment facilities.

The RFI map does include the location of both oil/water holding tanks.

PG&E RESPONSE: To clarify, the only change made to the wastewater treatment process between 1969 and 1985 was the temporary use of Poly Floc II and ferric sulfate while the injection well was in use. The goal was to remove the maximum amount of particulates possible to avoid clogging the injection well. No changes are required to the text.



3.0 FACILITY OPERATIONS AND HISTORY

Regional Board Order 69-25 ordered PG&E to cease discharging industrial wastewater by infiltration no later than January 1, 1970 and required any retention of wastewater to be in basins from which no infiltration or surface run-off may occur (RWQCB 1969). In response to this order, PG&E constructed wastewater injection well PGE-08. Injection of wastewater began in May 1970 and continued to August 1973. Records from the time (Dames & Moore 1970) indicate that there were some initial difficulties with the operation of the injection well. From May 1970 to September 1971, some wastewater may have been temporarily discharged to the percolation bed in Bat Cave Wash when injection well PGE-08 was offline for repairs or maintenance.

Pond 1, the first of four single-lined evaporation ponds (i.e., SWMU 10; the Old Evaporation Ponds), was completed September 1971. From September 1971 through August 1973, Pond 1 may have also been used temporarily for the disposal of wastewater when injection well PGE-08 was offline for repairs or maintenance. The 1972 annual report pursuant to Order 70-72 (RWQCB 1970) indicates that a total of 1.6 million gallons of wastewater were discharged to Pond 1 in 1972 (PG&E 1972). This volume constitutes approximately 10 percent of the average annual wastewater volume.[8] Between August a
treated wastewater was discharged alternately on a 3-day cycle betwe
and Pond 1 (PG&E 1973). Beginning in December 1973, wastewater wa
to the evaporation ponds. Ponds 2 through 4 were subsequently comp
began receiving wastewater shortly thereafter. Industrial wastewater
compressor station between 1973 and 1989 was discharged to the sing
ponds.

"The volume constitutes approximately 10 percent of the average annual wastewater volume."

Where did the remainder of the wastewater go?

The four single-lined evaporation ponds were replaced by four new, C
evaporation ponds in 1989 (i.e., Ponds #1 through #4). Since 1989, all industrial wastewater from the compressor station has been disposed of at the Class II ponds. The original, single-lined ponds were clean closed in 1993.

S2-67

Discussion of ponds and pond closures need citations.

Sludge
from t
for del
Octob
off site
genera
(PG&E
sludge

May 1985, sludge generated in the precipitation tank lowdown was transferred
QCB 1970; A.T. Kearney 1
l directly from the precipi
aste. The volume of chrom
stant and averaged about
(PG&E 1984b) indicate tha
ams per kilogram (mg/kg)
Soluble threshold limits concentration data for the elutriate der
were reported as 170 mg/L Cr(T) and 0.98 mg/L Cr(VI).

How was the sludge disposed of prior to 1969?

A 1970 letter (PG&E 1970) indicates that PG&E was planning to bury the initial batch of sludge on or near the compressor station; however, there is no d
whether this on-site disposal occurred. RWQCB Order 70-73 spe
requirements (location and placement) for the chromium hydro
Landfill was issued on October 29, 1970 (RWQCB 1970). It appea
hydroxide sludge was disposed of at Needles Landfill from that

Does the 1970 letter contain any indication of where they planned on disposing the sludge?

[8] The reported average daily discharge rate at the time was 48,500 gallons, or approxim
(RWQCB 1969).

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Response to Comment S2-67(RS_101805_10)

DTSC RESPONSE: PG&E shall address this comment indicating that the remainder of the wastewater was injected through PGE-08.

Pond closure citations shall be added.

PG&E shall clarify that little if any sludge was generated prior to 1969 since only a single-step treatment system was used. The single-step system converts Cr(VI) to Cr(III), but does not remove the chromium (i.e., precipitate).

The 1970 letter does not contain any information on where disposal was planned.

PG&E RESPONSE: The text has been changed as requested for the first two items.

No response is required for the other two items.

1983, although no specific documentation exists for 1971 and 1972.[9] Sludge shipping manifests compiled by PG&E (PG&E 1984c) indicate that a total of 166,500 gallons of sludge were disposed of at the Needles Landfill between 1973 and 1983. Annual volumes shipped varied widely, from 0 to 33,600 gallons, suggesting that there was storage capacity in the sludge drying beds. In response to California Department of Health Services (CDHS) directives (CDHS 1984a), no shipments were sent to the Needles Landfill after 1983 (PG&E 1984b-c). From January 1984 to October 1985, the dried sludge was transported off site to an approved Class I hazardous waste facility (PG&E 1984c; CDHS 1984b).

Although there are non-PG&E references to sludge having been removed from the single-lined ponds (A.T. Kearney 1987; CDHS 1985), it appears unlikely that the facility would have jeopardized the integrity of the pond liner by employing mechanical means of sludge removal. In addition, due to the size and depth of the ponds, it is unlikely that routine removal of sludge would have been required. The "sludge" that would have been present in the ponds would have consisted predominately of mineral salts found in the makeup water and dust blown into the ponds (Riddle 2004). Some solids were found in the ponds and tested as part of an overall sampling program for the wastewater treatment system (Brown and Caldwell 1985a). Based on information obtained from PG&E, it is likely that sludge removal would only have occurred if repairs were required to one of the ponds (Riddle 2004).

Very little sludge, if any, is generated using the phosphate-based cooling water treatment system. The current Class II evaporation ponds were designed for a 20-year life and have accumulated less than 6 inches of residue in the bottom since being placed into service in 1989. Most of the residue currently found in the ponds is dust and sand that has blown into the ponds (Riddle 2004).

Waste Oil. Waste oil removed from the oily wastewater is collected and transported off site for disposal or recycling (additional information on the management of provided in Section 3.1.5.2).

Transported since 1980 by licensed transporter... What happened prior to 1980?

S2-68

3.1.5 Facility and Equipment Maintenance

The fifth major activity at the compressor station is maintenance of the equipment. Typical maintenance tasks include:

- Preventive maintenance of mechanical and electrical systems.
- Mechanical and electrical repairs of operating equipment.
- Minor maintenance of buildings and structures on the property.
- Fueling and servicing of vehicles required for station operations.
- Chemical testing of cooling water.

Equipment maintenance consists of preventive maintenance and repairs for the various mechanical and electrical equipment at the facility. Routine maintenance of small system components occurs on an as-needed basis. Special maintenance tasks consist primarily of compressor engine and generator engine overhauls. Compressor engines are overhauled

[9] Off-site disposal of chromium hydroxide sludge does not appear to have been performed at routine (e.g., quarterly) intervals, but appears to have been performed only sporadically. This suggests that the sludge was stockpiled on site and disposed of only as necessary. This may explain the absence of disposal records for 1971 and 1972.

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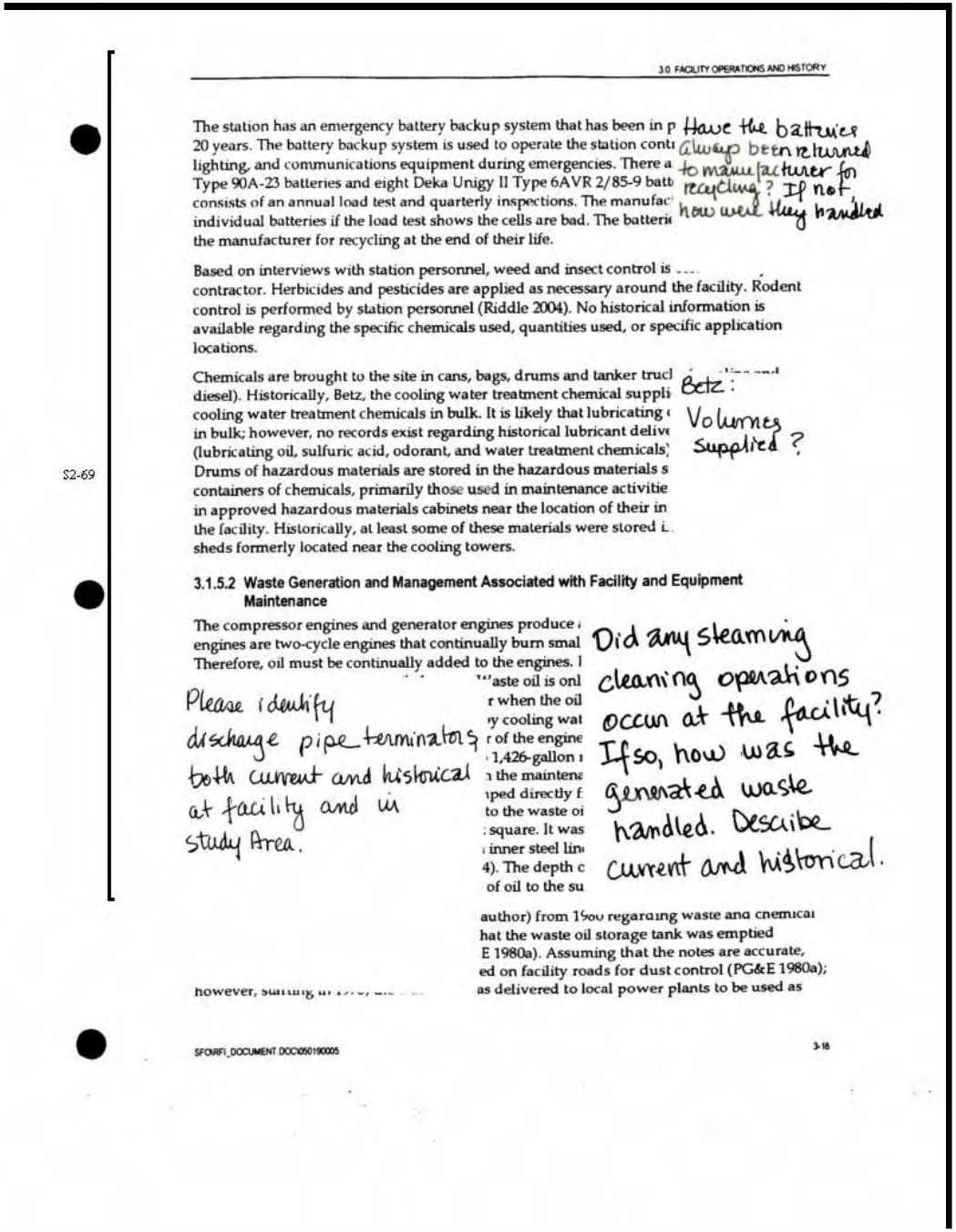
Response to Comment S2-68(RS_101805_29)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt to address the additional requested information. See also the response to Comment S2-1.

PG&E RESPONSE: Additional employee interviews indicate that some of the waste oil may have been sprayed for dust control on station roads. This information is provided in Section 3.1.5.2. No other new information was identified.



3.0 FACILITY OPERATIONS AND HISTORY

The station has an emergency battery backup system that has been in p
20 years. The battery backup system is used to operate the station conti
lighting, and communications equipment during emergencies. There a
Type 90A-23 batteries and eight Deka Unigy II Type 6AVR 2/85-9 batt
consists of an annual load test and quarterly inspections. The manufac
individual batteries if the load test shows the cells are bad. The batteri
the manufacturer for recycling at the end of their life.

Have the batteries always been returned to manufacturer for recycling? If not how were they handled

Based on interviews with station personnel, weed and insect control is ...
contractor. Herbicides and pesticides are applied as necessary around the facility. Rodent control is performed by station personnel (Riddle 2004). No historical information is available regarding the specific chemicals used, quantities used, or specific application locations.

Chemicals are brought to the site in cans, bags, drums and tanker trucl
diesel). Historically, Betz, the cooling water treatment chemical suppli
cooling water treatment chemicals in bulk. It is likely that lubricating
in bulk; however, no records exist regarding historical lubricant delive
(lubricating oil, sulfuric acid, odorant, and water treatment chemicals)
Drums of hazardous materials are stored in the hazardous materials s
containers of chemicals, primarily those used in maintenance activitie
in approved hazardous materials cabinets near the location of their in
the facility. Historically, at least some of these materials were stored i
sheds formerly located near the cooling towers.

Betz: Volumes supplied?

S2-69

3.1.5.2 Waste Generation and Management Associated with Facility and Equipment Maintenance

The compressor engines and generator engines produce
engines are two-cycle engines that continually burn smal
Therefore, oil must be continually added to the engines.
aste oil is onl
r when the oil
y cooling wat
r of the engine
1,426-gallon
the maintena
ped directly f
to the waste oi
square. It was
inner steel lin
4). The depth c
of oil to the su

Did any steaming cleaning operations occur at the facility? If so, how was the generated waste handled. Describe current and historical.

Please identify discharge pipe terminators both current and historical at facility and in study Area.

author) from 1980 regarding waste and chemical
hat the waste oil storage tank was emptied
E 1980a). Assuming that the notes are accurate,
ed on facility roads for dust control (PG&E 1980a);
however, starting in 1978, the ...
as delivered to local power plants to be used as

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Response to Comment S2-69(RS_101805_11)

DTSC RESPONSE: PG&E has already performed a significant historical information search and have compiled sufficient chemical usage and waste disposal information to support the identification of potentially affected areas and contaminants of concern, and the development of conceptual site models. However, PG&E shall make a reasonable attempt to obtain the additional requested information. See also the response to Comment S2-1.

PG&E RESPONSE: Based on the available information, batteries were either returned to the manufacturer or Wiley Wrecking for salvaging. No additional information was identified.

Text was added to Section 3.1.5.2 to briefly discuss steam cleaning. Discharge from steam-cleaning area was routed to the oil/water separator.